ESSAYS ON THE INTERACTION BETWEEN CHILDREN'S HEALTH INSURANCE AND PARENTAL CIRCUMSTANCES

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ESSAYS ON THE INTERACTION BETWEEN CHILDREN'S HEALTH INSURANCE AND PARENTAL CIRCUMSTANCES

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In the first chapter of this dissertation, I study the effect of child support health insurance mandates on children's health insurance coverage. Children are more likely to lose health insurance when their parents divorce or separate, which is problematic because lack of health insurance is associated with reduced preventive care, diagnosis of diseases at later stages, and higher mortality. In order to increase coverage for children and reduce costs associated with public health insurance, many states have passed child support laws which mandate that a parent provide health insurance for the children if it is available at a reasonable cost. This paper is the first to evaluate the impact of these statutes on the number of children who lose health insurance due to parental divorce or separation. I codify the relevant laws by state and year from 1990 through 2007 in terms of the presence of mandates and the number and type of enforcement mechanisms. These variables are then linked to panels of the Survey of Income and Program Participation (SIPP), which provide the remainder of the necessary variables. Three main regressions are estimated. The first measures the overall effect of child support health insurance mandates on children's insurance coverage. The second equation measures the first intermediate step, whether child support health insurance mandates result in an order in the child support agreement to provide health insurance. The third equation measures the second intermediate step,

whether an order for the parents to provide health insurance results in insurance coverage for children. I find that child support laws requiring parents to provide health insurance do not significantly impact the presence or type of health insurance coverage for children of divorced or separated parents. Additionally, these laws do not increase the probability that the child support agreement contains an order to provide health insurance, and an order to provide health insurance does not increase the probability of either any coverage or private coverage.

In the second paper, we study the relationship between divorce and health insurance. Changing marital status is an important source of health insurance change. However, neither the health nor family economics literatures have examined this phenomenon. Using the SIPP, we document how health insurance status changes over time for men, women, and children as divorce and separation occur, as well as the likely causes of these changes. We find modest changes in overall coverage, but these changes mask large changes in type of coverage as people divorce or separate.

In the third paper, we look at the effects of government aid expansions on labor market outcomes. While many studies investigate the magnitude by which public insurance expansions 'crowdout' private coverage, we ask a question new question: are such families able to recoup the benefits of no longer relying on employer provided coverage for children when they move to public coverage? Our findings from the SIPP do not show noticeable improvements, though our findings from the Current Population Survey (CPS) show a positive and significant effect on income and hourly wages.

BIOGRAPHICAL SKETCH

Jamie Rubenstein Taber has accepted a position as Economist with the United States Census Bureau, Social, Economic, and Housing Statistics Division. Jamie received her Ph.D. in the Economics at Cornell University in 2012 and her MA from Cornell University in Economics in 2010. She holds an AB in Economics and Environmental Studies from Bowdoin College in Brunswick, Maine. She also studied at The London School of Economics in 2001. Prior to starting graduate school, Jamie worked as a research assistant in the Health Policy Center of the Urban Institute in Washington, DC.

Jamie is a health economist with interests in economic demography and labor economics. She uses health, family, and labor economic theory to explore the interrelationships between family decision-making, health insurance coverage, and labor market outcomes. Her current work focuses on evaluating the effect of child support policies on health insurance as well as exploring the relationships between family structure and health insurance. Jamie has presented her work at various conferences, including conferences of the American Society of Health Economists, the American Association for Public Policy Analysis and Management, and the Population Association of America. Jamie's work as been published in *Demography* and the *Health Care Finance Review.*

To John and Jackson

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CHAPTER 1

THE EFFECT OF CHILD SUPPORT HEALTH INSRUANCE MANDATES ON CHILDREN'S HEALTH INSURANCE COVERAGE

Jamie Rubenstein Taber

ABSTRACT

Children are more likely to lose health insurance when their parents divorce or separate, which is problematic because lack of health insurance is associated with reduced preventive care, diagnosis of diseases at later stages, and financial risks. In order to increase coverage for children and reduce costs associated with public health insurance, many states have passed child support laws which mandate that a parent provide health insurance for the children if it is available at a reasonable cost. This paper is the first to evaluate the impact of these statutes on health insurance status of children whose parents divorce or separate. I codify the relevant laws by state and year from 1990 through 2007 in terms of the presence of mandates and the number and type of enforcement mechanisms. These variables are then linked to panels of the Survey of Income and Program Participation (SIPP), which provide the remainder of the necessary variables. Three main relationships are estimated. The first regression measures the first intermediate step, whether child support health insurance mandates result in an order in the child support agreement to provide health insurance. The second set of regressions estimates the overall effect of child support health insurance mandates on children's insurance coverage. The third relationship measures the second intermediate step, whether an order for the parents to provide health insurance results in insurance coverage for children. I find that child support laws requiring parents to provide health insurance do not significantly increase the probability that there is a health insurance order in the child support agreement. These laws do significantly impact the presence or type of health

insurance coverage for children of divorced or separated parents in some specifications. Having a health insurance order in the child support agreement is associated with a higher probability of private health insurance coverage, but this relationship may not be causal.

I. INTRODUCTION

Two central goals of children's health policy in the United States are to decrease the number of uninsured children and to only publically insure children who would otherwise be uninsured. With regard to the first goal, as of 2009, 6.6 million children remained uninsured (Kenney et al 2011). Lack of health insurance is associated with a variety of well documented problems, including increased unmet needs, decreased probability of a usual source of care, lower service use, lower rates of meeting professional association guidelines, and an increase in preventable conditions (Davidoff et al 2003, Dubay and Kenney 2001, Kaestner 1999, Newacheck 1998, Yu 2002). With respect to the second goal, crowd-out, or the provision of public coverage for children who would otherwise be insured, has also been a central issue in the health policy literature, and the State Children's Health Insurance Program, a major source of public coverage for children, requires states to explicitly work to reduce crowd-out (Hill et al 2003). When the government provides health insurance for children who could be privately covered in the absence of public insurance, the government spends resources without an associated decrease in the uninsurance rate, which is unlikely to be the most efficient use of scarce government resources. Both children's uninsurance and public insurance rates could potentially be reduced by focusing on a particularly vulnerable group of children who have especially close contact with the legal system and government agencies: children of divorcing or separating parents.

About one million divorces occur each year (NCHS 2007), and in 1990 over one million children had their parents divorce (NCHS 1995). In addition to other challenges that these children face, children with single parents are more likely be uninsured, more likely to have public coverage, and less likely to

be privately insured than children with married parents (Heck and Parker 2002, Peters Rubenstein and Simon 2010, Weinick and Monheit 1999). Peters et al (2010) find that in the 2004 SIPP, children of divorced and separated parents are respectively 21 and 26 percentage points less likely to have employer sponsored coverage than children of married parents. They are respectively 17 and 33 percentage points more likely to have public coverage. And children of divorced and separated parents are 2 and 4 percentage points respectively more likely to be uninsured than children of married parents. While much of these differences are due to socioeconomic and demographic differences between the groups, some differences likely result from the marital dissolution. When children are viewed longitudinally over the time period that their parents divorce or separate, overall insurance rates decrease, private coverage drops dramatically, and public coverage increases. From four months prior to the marital dissolution to two months after the marital dissolution, private dependent coverage decreased by 5 percentage points, while public coverage increased by 3 percentage points.

To the extent that parents who divorce or separate have private coverage for their children which they are not providing, both uninsurance for children and crowd-out can potentially be ameliorated by health insurance mandates in child support laws, provisions in child support laws which require parents to provide private health insurance for their children when it is available at a reasonable cost. Reasonable cost is generally defined as insurance that is available through an employer or union, though some states define reasonable cost in terms of percent of income. These laws mandating divorcing and separating parents to provide health insurance, which were first promoted by the federal government in 1977 (U.S. House of Representatives, Committee on Ways and Means 2004), have been passed into state law by most states between the early 1980's and the present. Additionally, states have passed a range of enforcement mechanisms designed to encourage compliance by parents, employers and insurers, facilitate the sharing of information about health insurance plan availability, and narrow the

conditions under which an employer or insurer can deny coverage to a child or disenroll them from the parent's coverage. However, the effectiveness of these health insurance mandates in the child support laws and the associated enforcement mechanisms have never been evaluated, largely because the necessary data did not exist.

The effectiveness of medical support laws is unknown, though some suggestive evidence exists on the prevalence of health insurance requirements in child support orders and their potential for increasing coverage. According to the Census Bureau, 40 percent of women with written child support agreements have a health insurance provision in the agreement. However, only 68 percent of these mothers report that the father actually provides coverage (U.S. Bureau of the Census 1991). Additionally, 7 percent of women whose agreements do not provide for health insurance report that health insurance is provided by the father. Another study finds that in 1993, in cases where the child support agreement required a custodial parent to provide health insurance, the parent complied in two thirds of cases (Wheaton 2000). A paper by Daniel Meyer finds that 44 percent of children living with their mothers do not have a child support agreement. Of those that do, 60 percent have child support orders where parents are not ordered to provide coverage. Of those with orders for a parent to provide coverage, 31 percent do not receive coverage (Meyer 1997). Evidence on whether the proportion of child support agreements with health insurance orders is rising or falling over time is mixed. Reports by the U.S. Census Bureau show that the percentage of agreements with health insurance orders in them fell from 46% in 1983 to 40% in 1989 (U.S. Bureau of the Census 1986, 1989, 1990) However, two other studies showed that child support awards increased during the 1980's (U.S. General Accounting Office 1992; Gordon 1991).

Theoretical Framework

This paper takes as a starting point the model by Weiss and Willis, which assumes that each parent cares about the well-being of the child (Weiss and Willis 1985). That is, each parent has expenditures on the child in his or her utility function, and children are a "couple specific public good". When a couple is married, they can work together to allocate their resources efficiently so that the economically efficient amount of resources are spent on the child. But when divorce occurs, the non-custodial parent loses control over how money is spent on the child, so fewer resources are spent on the child than in the married state. It is possible that fewer resources being provided may mean that the child loses private health insurance either because the non-custodial parent is no longer willing to provide it or because the custodial parent can no longer afford the premiums. However, there is a third agent in this framework: the government. Among other things, the government wants parents to continue providing private coverage for their children because the government wants to minimize both uninsurance and expenditures on public health insurance. As a result, parents must bargain subject to state laws, which, in the case of health insurance mandates in child support laws, means that the parents must provide private health insurance at higher rates than they would have otherwise.

Practical Framework

Given the theoretical framework discussed above, it is clear that in the presence of laws requiring parents to provide private health insurance, private health insurance rates for children should increase. However, two factors imply that rates may not increase. First, realities of the legal system may subvert the intentions of the law. Second, since parents must provide private coverage only if it is available at reasonable cost, private coverage will only increase if it is available at reasonable cost. Since reasonable cost is usually defined as coverage through an employer or union, having an offer of coverage is necessary for the laws to have an impact.

The first reason these laws might not work is although in theory state laws are binding on individuals, in practice there are opportunities for parents to intentionally or unintentionally avoid following them. Divorce agreements may come about in a number of ways. At one extreme, a couple who cannot communicate with each other might fight in court to determine the terms of the divorce and child support agreement. Since lawyers and judges are integral to the process, this couple is likely to end up with a child support agreement that strictly follows child support laws. At the other extreme, a couple who is still on relatively good terms may write up a divorce agreement over the kitchen table. In this case, the couple bargains "in the shadow of the law." The law gives each person an endowment point, and the couple may move away from these endowment points if the changes are Pareto improving. Additionally, if this couple is ignorant of particular part of the law, that portion of the law might not impact negotiations at all. The child support agreement will have to be approved by a judge, but it is common for a judge to "rubber stamp" an agreement if there is no conflict. This may happen because the judge is busy or pressed for time or because it is costly to obtain information that the divorcing couple does not volunteer (Maccoby and Mnookin 1992). In fact, it is much more common for a divorcing couple to come to an agreement on their own and merely have that agreement rubber stamped by a judge (Mnookin and Kornhauser, 1979). Mnookin and Kornhauser write "most courts behave as if their function in the divorce process is dispute settlement, not child protection. When there is no dispute, busy judges or registrars are typically quite willing to rubber stamp a private agreement, in order to conserve resources for disputed cases." So even though technically the law must be followed by all divorcing couples, couples who come up with their child support agreements more or less independently may not be impacted by aspects of the child support laws.

The second reason that health insurance mandates in child support agreements might not have an effect is that for these laws to be effective, it is necessary that one or both of the parents of uninsured

and publically insured children have access to affordable private health insurance coverage which can be extended to cover their children. A report by Laura Wheaton using the 1993 SIPP finds that among non-custodial fathers who do not provide private coverage for their children, 42 to 51 percent have access to private coverage though their employer in at least one of four months. However, many of these fathers have children who are already covered by private coverage, and Wheaton estimates that only 2 to 18 percent of families without private insurance could receive coverage from the non-custodial father (Wheaton 2000). Another study by Daniel Meyer finds that in Wisconsin between 4 and 28 percent of children of divorced parents covered by Medicaid and between 9 and 31 percent of uninsured children could be covered by a non-custodial parent, though Meyer states that the lower end of the ranges given is more likely (Meyer 1997). Additional evidence comes from a very small sample of families in Ohio and Florida (Sonenstein and Calhoun 1988). Sonenstein and Calhoun found that of 27 uninsured children only 9 of the non-custodial parents had private coverage, and only 2 reported that they could have covered their children. Of the 59 publicly covered children, a third of the non-custodial parents have private coverage, but only 15 percent reported being able to cover their children. Thus, based on the studies discussed above, health insurance mandates in child support laws may have limited scope to increase coverage.

In order to assess whether health insurance mandates and their associated enforcement mechanisms are effective in increasing private coverage for children of divorcing and separated parents while decreasing public coverage and uninsurance, I ask three questions. The first question examines the first part of the process through which laws could impact children's health insurance. It asks whether the child support laws mandating health insurance and providing enforcement mechanisms increase the probability of a health insurance order in the child support agreement. To answer this question, presence of a health insurance order in the child support agreement is estimated as a function

of the child support laws. The second question aims to determine the overall effect of the laws on the final outcomes by determining how laws mandating health insurance orders in child support agreements and the associated enforcement mechanisms impact likelihood of coverage, probability of private coverage and probability of public coverage. Here, presence or type of insurance coverage is estimated as a function of legal variables measuring the presence of a law requiring health insurance in the child support agreement and the presence of associated enforcement mechanisms. The third question looks at the second part of the process. It asks whether the presence of a health insurance order in the child support agreement increases the likelihood of coverage, increases the likelihood of private coverage and decreases the likelihood of public coverage. This final question is examined descriptively due to endogeneity issues.

The remainder of the paper is organized as follows. Section II discusses first the unique data on state laws collected for this paper and then the use of the Survey of Income and Program Participation (SIPP). Section III outlines the methodology used to study whether health insurance mandates in child support agreements have an impact. Section IV presents results, and Section V concludes and offers policy implications.

II. DATA

A. STATE LAWS

The key variables in this analysis are two measures of the health insurance mandates in state child support laws as well as five variables which capture laws providing penalties for noncompliance by various agents or laws seeking to increase coverage through other means. These variables pinpoint the year that the each of the laws changed in each of the 41 states used in the analysis[1] from 1990-2007.

[1] These 41 states are the states separately identifiable in the SIPP. The excluded states are Alaska, Idaho, Iowa, Maine, Montana, North Dakota, South Dakota, Vermont and Wyoming.

Changes in state laws were gathered via a thorough search and reading of historical state statutes and session laws. The first stage of this process used Lexis Nexis Academic to search the current laws of each state for the relevant provisions. For each state I did five searches, using the terms "medical support", "health insurance" and "child support", "medical insurance" and "child support", "health coverage" and "child support", and "medical coverage" and "child support". I read the results of each search and identified current laws which contained provisions on health insurance requirements and enforcement mechanisms as well as their histories. I then referred to the State Codes for each state to determine whether Lexis Nexis Academic contained the full history of law changes for that state and whether the sections of code that I identified were based on previous laws that were later repealed. For a few states I could determine when the relevant sections of the law changed from Lexis Nexis and the State Codes alone. For the remainder of the states, I acquired and read yearly session laws for the years in which the relevant laws changed in the law to determine at which point the law went from not containing a provision measured by one of my variables to containing it. Initially I collected information on 35 variables. I then condensed these 35 variables to seven variables which I use in this analysis based on similarities between the variables and the mechanism that they work through.

Mandates and Allowances

I collect two variables which capture whether the state law requires the child support agreement to contain an order that one or both parents provide health insurance. The first type of law I refer to as a "mandate." While exact requirements and wording varies between states, generally these laws require that a parent must provide health insurance for his or her children if it is available at reasonable cost. "Reasonable cost" may be defined as group coverage through an employer or union or as a percent of the parent's income.[2] Some state laws contain rules for which parent should provide coverage, although

[2] Percentages given are relatively small, and in practice this means that any private coverage not from an employer or union is likely to cost more than the percentage given.

these rules vary and are not provided by all states. Below is an example of a Pennsylvania law passed in 1992.

(a) General rule.—In every proceeding to establish or modify an order which requires the payment of child support, the court shall ascertain the ability of each parent to provide health care coverage for the children of the parties.
(b) Noncustodial parent requirement.—If health care coverage is available at a reasonable cost to a noncustodial parent on an employment related or other group basis, the court shall require that the noncustodial parent provide such coverage to the children of the parties. In cases where there are two noncustodial parents having such coverage available, the court shall require one or both of the parents to provide coverage.
(c) Custodial parent requirement.—If health care coverage is available at a reasonable cost to a custodial parent on an employment-related or other group basis, the court shall require that the custodial parent provide such coverage to the children of the parties, unless adequate health care coverage has already been provided through the noncustodial parent. In cases where parents have shared custody of the child and coverage is available to both, the court shall require one or both parents to provide coverage, taking into account the financial ability of the parties and the extent of coverage available to each parent.[3]

The second type of law I refer to as an "allowance". An allowance represents a variety of types of laws. Like a mandate, an allowance requires that a parent must provide health insurance for his or her children if it is available at reasonable cost, but allowances are different from mandates because they are weaker. Allowances may state that the court "may allow" a requirement for health insurance, that the court "should" require a parent to provide health insurance, or that the court must require a parent to provide health insurance if the other parent or a state agency requests it. Below is an example of an allowance passed by Louisiana in 1995.

> In any child support case, the court may order one of the parties to enroll or maintain an insurable child in a health benefits plan, policy, or program. In determining which party should be required to enroll the child or to maintain such insurance on behalf of the child, the court shall consider each party's individual, group, or employee's health insurance program, employment history, and personal income and other resources.[4]

I find that in 1990, the initial year of the analysis 12 states had a mandate and an additional 9 states had an allowance. By 2007, 29 states had a mandate and seven more had an allowance. These

[3] Laws of Pennsylvania Session of 1992. Act 1992-114. Section 2 §4326.
[4] Louisiana Regular Session 1995. Act 236. Section 1.

changes are depicted in Figure 1.1. In this figure, as in the data, states may transition over time from no law to an allowance, no law to a mandate or from an allowance to a mandate. A few states transition through all three stages over the time period examined.

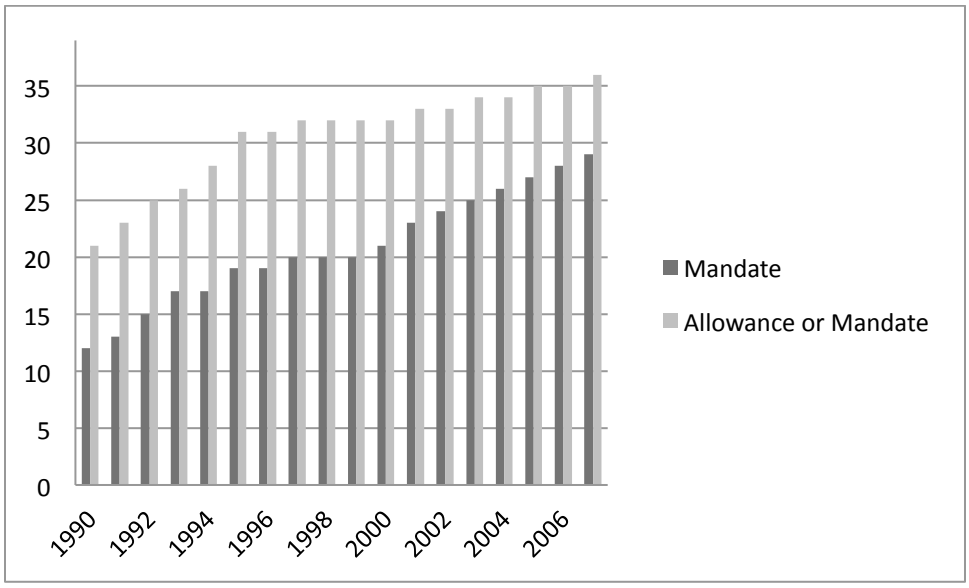

FIGURE 1.1: States with a Mandate or Allowance

Enforcement Variables

Provisions in the child support laws intended to enforce or otherwise strengthen the effect of the mandates and allowances were consolidated into five variables: parent penalties, employer or insurer penalties, information sharing requirements, restrictions on enrollment and disenrollment, and automatic enrollment and withholding.

Parent Penalties

Parent penalties are financial and legal consequences if a parent fails to enroll a child in a health insurance plan when he is required to do so by a court order. They include liability for health expenses during the period which the child should have been covered, being charged with contempt of court, or the loss of the parent's driver's license or other license. Parent penalties are the least prevalent of all the

enforcement mechanisms, with 4 states having them in 1990 and 18 states instituting them by 2007 (Figure 1.2).

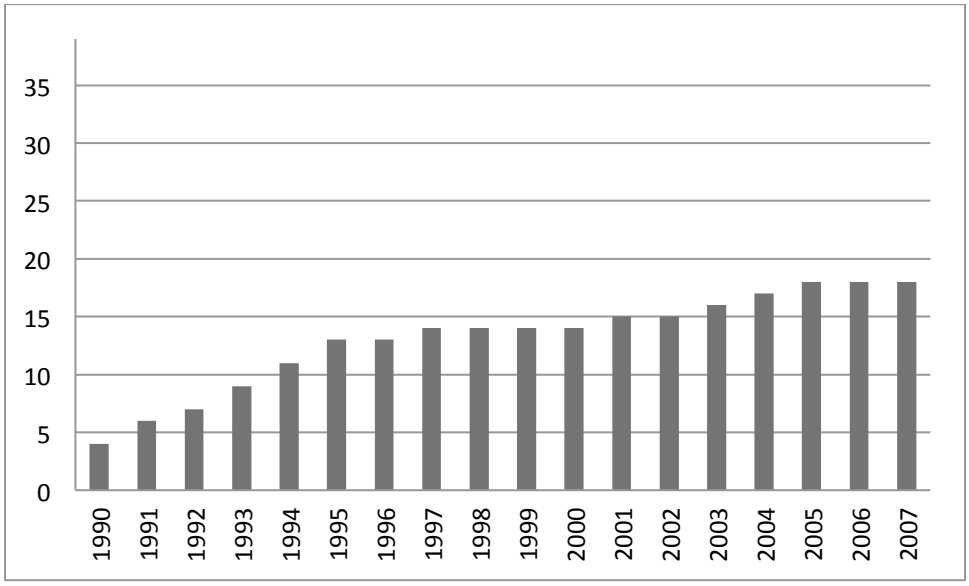

FIGURE 1.2: States with Parent Penalties

Employer or Insurer Penalties.

Employer or insurer penalties take effect when an employer or insurer receives an official notice that a child must be covered by the company's health insurance policy and the employer or insurer willfully fails to enroll the child. Such penalties include liability for health expenses during the period that the child should have been covered and fines. Two states had parent penalties in 1990 and 22 states had instituted them by 2007 (Figure 1.3).

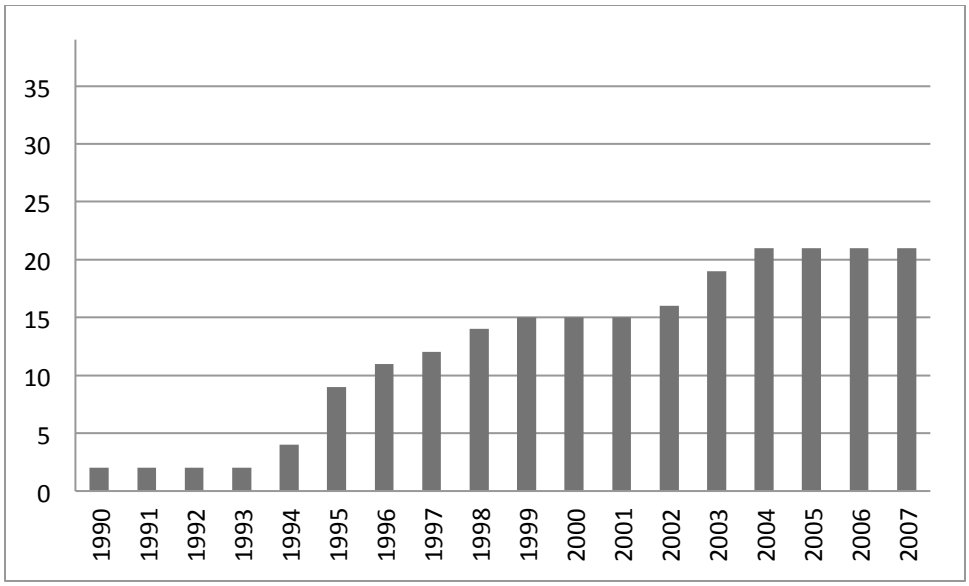

FIGURE 1.3: States with Employer Penalties

Information Sharing Requirements.

Information sharing requirements are a broad range of provisions requiring the sharing of information to facilitate coverage. This includes requirements that a parent keep a state agency or the other parent informed about the availability of coverage, that a parent shares all information necessary to make claims with the other parent, or that the employer informs a state agency or the other parent if insurance is discontinued. Seven states had information sharing provisions in 1990, which increased to 34 states by 2007 (Figure 1.4).

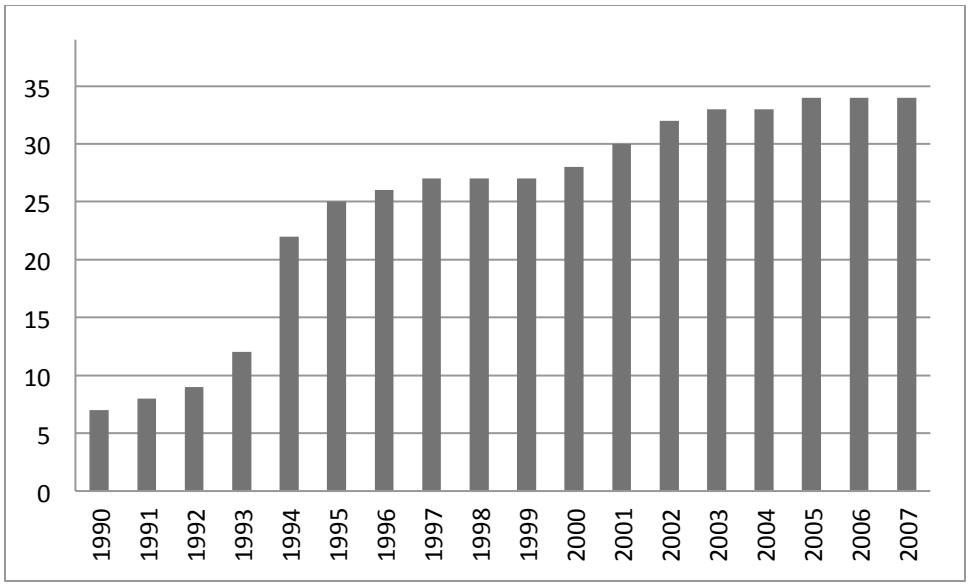

FIGURE 1.4: States with Information Sharing Requirements

Restrictions on Enrollment and Disenrollment

Restrictions on enrollment and disenrollment state conditions under which a child cannot be denied coverage and limit the cases in which a child can be disenrolled. Restrictions on enrollment are fairly uniform across states and generally provide that an insurer cannot not deny a child enrollment if the child was born out of wedlock, the child is not claimed as a dependent on the parent's federal or state tax return or the child does not reside with the parent. Restrictions on disenrollment are also fairly constant across states. They say that the employer cannot disenroll a child unless a court order is no longer in effect, a child will have other comparable coverage or an employer terminates coverage for all employees. One state had restrictions on enrollment and disenrollment in 1990, and 32 states had these requirements by 2007 (Figure 1.5).

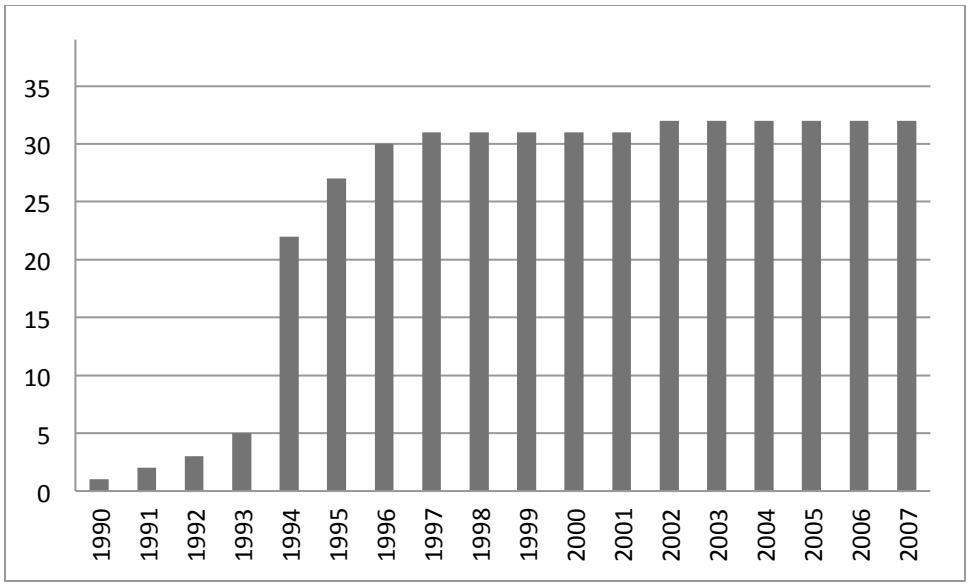

FIGURE 1.5: States with Enrollment or Disenrollment Restrictions

Automatic Enrollment and Withholding

Automatic enrollment and wage withholding requires an employer to enroll the child of an employee in a health insurance plan and withhold that employee's wages to pay the premium. Guidelines are given for which plan to enroll a child in if there are multiple plans available. Some states that have automatic enrollment and withholding are for all parents ordered to provide health insurance and some states only have this for parents who fail to enroll their children. Eight states had automatic enrollment and withholding in 1990, with the number of states rising to 40 by 2007, as shown in Figure 1.6.

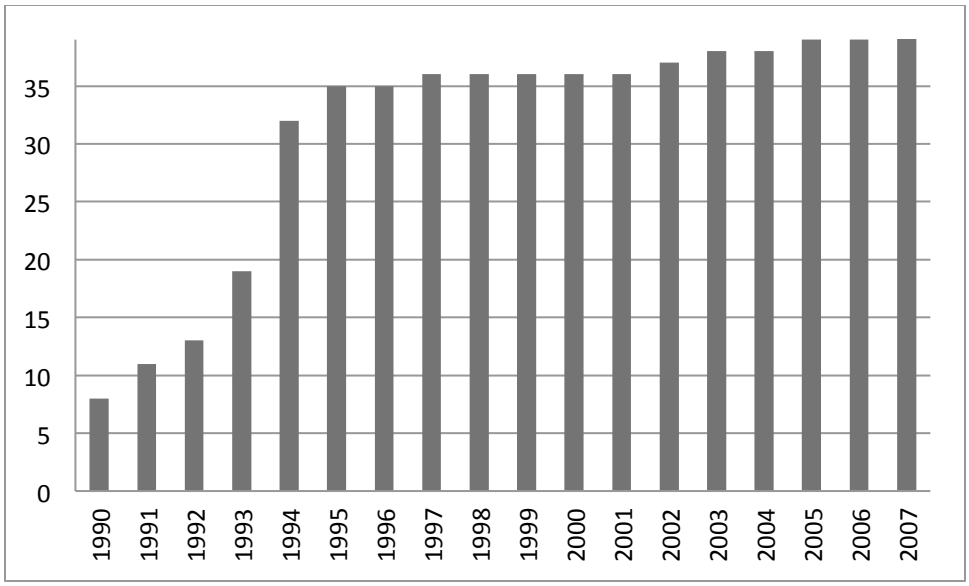

FIGURE 1.6: States with Automatic Enrollment/Withholding

B. SURVEY OF INCOME AND PROGRAM PARTICIPATION DATA

The seven variables described in the previous section are linked with data from the Survey of Income and Program Participation (SIPP). The SIPP is a series of panel data sets created by the United States Census Bureau covering the years between 1984 and 2009; I use the 1991, 1992, 1993, 1996, 2001 and 2004 panels, which cover the years from 1990-2007. Each panel consists of a nationally representative sample of households in the United States over a 2.5-4 year span, with the number of households in a panel ranging from 14,000 to 36,700. Each SIPP panel consists of both core content, which is asked each wave and topical content, which is asked during one or more waves. Waves take place every four months, and in each wave all individuals in the household over age 15 are interviewed. All individuals in the sample in the first wave are followed in later waves even if they move to a new address. I draw demographic, health insurance, and marital status from the core waves of the SIPP. I obtain information on marital history from the "Marital History" topical module which is asked once per panel, and information on the child support agreements from the "Child Support" topical module, which

is asked one to three times per panel depending on the panel. Next I describe how the three key variables in my sample are created.

Health Insurance Information

The SIPP provides extensive health insurance information on each individual in each wave including whether the individual had health insurance and what type of coverage they had. I define health insurance variables for whether the child had private dependent coverage, had public coverage, or was uninsured. Additionally, I create variables indicating whether private health insurance coverage is provided by someone inside the household (presumably the mother) or someone outside the household (presumably the father). For the 1993 panel and earlier this is based on a variable indicating whether health insurance is provided by someone inside or outside the household. For the 1996-2004 panels this is based on matching the person number of the adult who provides health insurance coverage for the child to all household members to see whether the insurance provider is in the household. Since the sample is limited to children living with their mothers, is very likely that coverage being provided by someone outside the household means that it was provided by the father.

Child Support Variables

The principal child support variable calculated is whether the child support order required one or both parents to provide health insurance. This is based on the question "What kinds of provisions for health care costs are included in the child support agreement?" where two of the choices are "Non-custodial parent to provide health insurance" and "Custodial parent to provide health insurance." The child support variable is defined for all children with divorced or separated parents, but can only equal one for those with a written child support agreement.

Legal Variables and Marital History

The legal variables described in the previous section are merged onto the data according to the date of divorce for those whose parents divorce and according to the date of separation for those whose parents separated but didn't divorce. This is done because the date of divorce or separation is the date when the child support agreement was decided. Although the SIPP also gives information on the date that the child support agreement was last revised, this is likely to be endogenous. The date of divorce is determined using the Marital History topical module. I use the dates of the mother's first marriage, second marriage, last marriage, first separation, second separation, last separation, and first divorce, second divorce, and last divorce to identify which marriage dates contained the child's birth and what the divorce or separation date was for that marriage. Cases where the marriage ended in widowhood are excluded.

Sample Definition

I subset my sample to children age 0-18 whose parents are divorced, who live with their mothers, and whose parents have been divorced less than 10 years. I subset to children who live with their mothers because most children with divorced parents live with their mothers and because children who live with their fathers are likely to be very different. I subset to those whose parents were divorced or separated less than 10 years because my legal data only goes back to 1990, so in the early years I can only use cases where the divorce or separation was recent. Eliminating cases were the marital dissolution was more than 10 years ago in the later years makes these cases similar to the earlier years.

I subset my sample to one observation per child, so that my data set becomes cross sectional. I do this because although one of my key variables, health insurance, varies monthly, my other key variables, presence of a health insurance order in the child support agreement and the seven legal variables, do not. Whether there is a health insurance order in the child support agreement is asked one to three times per panel, but there is very little variation over time when the question is asked of an

individual more than once. Legal variables are merged in based on the date of divorce or separation, so they cannot vary once an observation enters the sample. I use the observation that represents the last time in the panel that that the child support topical module was asked to a given individual in order to maximize the number of children whose parents have undergone divorce or separation. I always use observations from the fourth reference month of each wave to decrease recall bias.

III. EMPIRICAL STRATEGY

This paper answers three main questions. The first question asks whether health insurance mandates in child support laws increase the likelihood that a child support agreement contains an order that a parent must provide health insurance. The second question asks whether health insurance mandates in child support agreements and the associated enforcement mechanisms increase health insurance rates and types. The third question asks whether having an order in the child support agreement results in higher insurance rates and particularly a higher likelihood of private health insurance.

The first question asks whether laws requiring health insurance mandates in child support agreements translate into actual orders in the child support agreement for a parent to provide health insurance. This question is estimated via equation (1):

(1) $HIOrder_{st}=\beta_0 + \beta_1 M_{st} + \beta_2 A_{st} + \beta_3 E_{st} + \beta_4 M_{st}*E_{st} + \beta_5 A_{st}*E_{st} + \beta_5 X_{ist} + \beta_6 T_t + \beta_7 S_s + \beta_8 L_{st} + \varepsilon_{ist}$

where $HIOrder_{st}$ is a dummy variable indicating whether there is an order in the child support agreement for one or both parents to provide health insurance. If the health insurance provisions in the child support laws are effective then β_1 and β_2 will be greater than zero. If the enforcement mechanisms play a role as well than β_3, β_4, and β_5 will also be greater than zero.

The second question, whether health insurance mandates in child support agreements and the associated enforcement mechanisms increase health insurance rates and effect type of health insurance, is estimated using probit regressions. The main specification of the first of these regressions is of the form:

(2) $I_{ist}=\beta_0 + \beta_1 M_{st} + \beta_2 A_{st} + \beta_3 E_{st} + \beta_4 M_{st}*E_{st} + \beta_5 A_{st}*E_{st} + \beta_6 X_{ist} + \beta_7 T_t + \beta_8 S_s + \beta_9 L_{st} + \varepsilon_{ist}$

where I_{ist} represents insurance status for person i in state s at time t; M_{st} represents the presence of a health insurance mandate in the state child support laws; A_{st} represented the presence of an allowance in the state child support laws; E_{st} is a variable which varies from 0 to 5 and which measures how many of the 5 enforcement variables equal one; X_{ist} is a vector of individual demographic characteristics, a measure of Medicaid and SCHIP eligibility at the state/age/year level, and the unemployment rate ; T_t represents year dummy variables; S_s represents state fixed effects, L_{st} is a linear state time trend, and ε_{ist} is a stochastic error term. I expect that if mandates, allowances and enforcement mechanisms are effective then $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5>0$ since the intention of these laws is to increase insurance coverage.

The third and fourth equations are similar to the first equation and are of the form:

(3) $Private_{ist}=\beta_0 + \beta_1 M_{st} + \beta_2 A_{st} + \beta_3 E_{st} + \beta_4 M_{st}*E_{st} + \beta_5 A_{st}*E_{st} + \beta_6 X_{ist} + \beta_7 T_t + \beta_8 S_s + \beta_9 L_{st} + \varepsilon_{ist}$

(4) $Public_{ist}= \beta_0 + \beta_1 M_{st} + \beta_2 A_{st} + \beta_3 E_{st} + \beta_4 M_{st}*E_{st} + \beta_5 A_{st}*E_{st} + \beta_6 X_{ist} + \beta_7 T_t + \beta_8 S_s + \beta_9 L_{st} + \varepsilon_{ist}$

where $Private_{ist}$ is a dummy variable indicating that the child has private health insurance and $Public_{ist}$ is a dummy variable indicating whether a child has public health insurance. The remainder of the variables are identical to equation (2). In equation (3), I expect $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5>0$ if the laws are effective since mandates and allowances both require that a parent enroll their child in private coverage if it is available enforcement mechanisms should strengthen their impact. In Equation (4), the direction of $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ is ambiguous. The laws state that if a parent has private coverage available the child must be enrolled, implying that some children who were previously on Medicaid or SCHIP will now be

privately covered, and thus public coverage rates should decrease. However, courts or child support agencies may be reluctant to revoke public coverage, especially if private coverage would cause financial hardship or would be low quality. Additionally, two states, Texas and Connecticut, include a provision in their child support laws that if private coverage is not available and the child is eligible for public coverage, the child must be enrolled in the public coverage, which could cause public coverage to increase.

The third question asks whether having a health insurance order in the child support agreement translates into increased insurance coverage or increased private health insurance coverage as well as whether it decreases public coverage. Having a health insurance order in the child support agreement may be endogenous if parents who are more likely to provide health insurance regardless of a health insurance order are also more likely to include a health insurance requirement in their child support agreement. This might be true if parents who have easy and relatively inexpensive access to private coverage are more willing to suggest or less likely to fight the inclusion of a child support order. Since no instruments are available for the presence of the health insurance order, any estimate of the impact of a health insurance order in the child support agreement on insurance coverage is likely to be biased. Because of this, I only examine question 3 descriptively.

A related issue is whether these state child support laws simply increase private coverage or whether they additionally make it more likely that the father provides the coverage. This is an important question since coverage by a parent who lives far away can result in barriers to getting needed medical care. State laws often give criteria for which parent should provide coverage[5]. Since many of these laws either directly or indirectly favor the father providing coverage and because fathers initially provide inefficiently low levels of coverage, one may expect these laws and their associated enforcement

[5] Rules for which parent must provide coverage vary from state to state. Some states require the non-custodial parent to provide coverage if it is available, some specified that the parent with the less expensive or more comprehensive coverage should provide insurance, and some states do not specify which parent should cover the child.

mechanisms to specifically increase the probabilities that a child is covered by his or her father's health insurance plan. To examine this, I use methods similar to those outlined in the second and third question above except break down private coverage by whether it was provided by someone inside or outside of the household.

IV. RESULTS

A. DESCRIPTIVE RESULTS

The first question asks whether health insurance mandates and allowances in the child support laws increase the likelihood that a child support agreement contains an order that a parent must provide health insurance. Thirty one percent of child support agreements made in states with a mandate have a health insurance order, compared to 35 percent in states without a mandate or allowance, and 35 percent in states and years with an allowance (Table 1.1). However, the differences are not significant between children in states and years with a mandate and those in states and years with nothing or between children in states and years with an allowance and states and years with nothing.

The second question that this paper asks is whether health insurance mandates in child support agreements and the associated enforcement mechanisms impact health insurance rates and types. Table 1.2 tabulates type of insurance status for children in three groups: those with mandates in the state and year that their parents divorced or separated, those with an allowance in the state and year that their parents divorced or separated, and those without a mandate or allowance. Children in states and years with mandates are 5 percentage points less likely to have private coverage and 3 percentage points more likely to have public coverage than children in states and years without mandates or allowances. Children in states and years with allowances are not significantly different from children whose parents divorced or separated in states and years with neither. If the effect of mandates and allowances could be

seen in the descriptive results, I would expect children in states and years with a mandate or with an allowance to have more children privately covered, fewer children publicly covered, and fewer children uninsured. However, the fact that the results go in the opposite direction may be due to selection. Higher enrollments in public coverage and their associated costs may be driving states to create mandates, which would lead to the results seen here.

TABLE 1.1: The Relationship Between a Child Support Health Insurance Mandate and Presence of a Health Insurance Order

	Mandate	Allowance	Neither
Presence of a Health Insurance Order			
Yes	30.9	34.4	34.7
No	69.1	65.6	65.3
N	5,281	2,017	3083

Source: 1990-2004 panels of the Survey of Income and Program Participation
* p<.05, **
p<.01

Notes: This table tabulates percent of children with a health insurance order in their child support agreement for children whose parents divorced or separated in states and years with a mandate, whose parents divorced or separated in states and years with an allowance and whose parents divorced or separated in states with neither. "Neither" is the reference group for significance tests.

The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years. Sampling weights are used.

The third question asks whether having an order in the child support agreement results in higher insurance rates and, in particular, a higher likelihood of private health insurance. When tabulated descriptively, children with a health insurance order in their child support agreement are 17 percentage points more likely to have private coverage, 12 percentage points less likely to have public coverage, and 5 percentage points less likely to be uninsured (Table 1.3). Children with health insurance orders in their child support agreements may be more likely to have private coverage, less likely to have public coverage and be less likely to be uninsured because the health insurance orders are effective in getting

parents to purchase employer or union coverage for their children. Alternatively, it may be that parents who are more likely to provide public coverage for their children are also more willing add health insurance orders to their child support agreement.

TABLE 1.2: The Relationship Between a Child Support Health Insurance Mandate and Insurance Status

	Mandate		Allowance	Neither
Coverage Type				
Private	62.6	**	66.5	66.9
Public	21.9	**	21.1	19.3
Uninsured	15.5		12.4	13.8
N	5,281		2,017	3083

Source: 1990-2004 panels of the Survey of Income and Program Participation

* p<.05, ** p<.01

Notes: This table tabulates percent of children with each type of health insurance coverage for children whose parents divorced or separated in states and years with a mandate, whose parents divorced or separated in states and years with an allowance and whose parents divorced or separated in states with neither. "Neither" is the reference group for significance tests.

The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years. Sampling weights are used.

TABLE 1.3: The Relationship Between a Child Support Health Insurance Order and Insurance Status

	HI Order		No HI Order
Coverage Type			
Private	76.6	**	59.2
Public	12.7	**	24.7
Uninsured	10.7	**	16.1
N	6806		3982

Source: 1990-2004 panels of the Survey of Income and Program Participation

* p<.05, ** p<.01

Notes: This table tabulates type of insurance coverage for children with and without a health insurance order in their child support agreement.

The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years. Sampling weights are used.

B. REGRESSION RESULTS

The first question looks at the first intermediate step, whether mandates, allowances and enforcement mechanisms increase the probability that a child support order contains a health insurance order. This is measured via a probit regression using the specification in equation (1) which estimates whether there is a health insurance order in the child support agreement as a function of state laws, demographic characteristics, the extent of Medicaid and SCHIP eligibility laws, unemployment rates, state and year dummy variables and a linear state time trend. The results are suggestive that mandates and allowances have a positive impact on having a health insurance order in the child support agreement, although I am unable to conclusively show an effect. Specification 1 excludes the enforcement mechanisms and their interaction terms but includes all control variables except linear time trends by state (Table 1.4). Marginal effects for mandate and allowance are positive as expected, but

TABLE 1.4: Health Insurance Order

	(1)	(2)	(3)
Mandate	0.057	0.063	0.035
	(0.029)	(0.035)	(0.069)
Allowance	0.047	0.105	0.118
	(0.032)	(0.044)	(0.083)
Enforcement Intensity		0.019	0.026
		(0.017)	(0.029)
Mandate*Enforcement		-0.018	-0.017
		(0.018)	(0.030)
Allowance*Enforcement		-0.048	-0.054
		(0.022)	(0.034)
Female	0.004	0.004	0.004
	(0.009)	(0.009)	(0.009)
Black	-0.191	-0.190	-0.188
	(0.024)	(0.024)	(0.024)
Hispanic	-0.146	-0.146	-0.151
	(0.028)	(0.027)	(0.027)
Other Race	-0.137	-0.135	-0.135
	(0.029)	(0.029)	(0.030)
<HS Education	-0.131	-0.133	-0.133
	(0.017)	(0.017)	(0.017)
Some College	0.056	0.056	0.058
	(0.014)	(0.014)	(0.014)
Bachelors or more	0.084	0.084	0.084
	(0.017)	(0.017)	(0.017)
Divorce	0.018	0.017	0.016
	(0.010)	(0.010)	(0.010)
Medicaid/SCHIP Eligibility	-0.038	-0.028	-0.061
	(0.066)	(0.064)	(0.065)
Unemployment	0.004	0.005	0.030
	(0.010)	(0.010)	(0.010)
Year dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	Yes

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

they are not significant. Specification 2 includes enforcement variables, since it is possible that knowledge of enforcement variables makes an order more likely. Again both marginal effects are positive, though now the marginal effect for allowance is larger and significant. However, it is not expected that the effect of allowance will be greater than the effect of mandate. Enforcement mechanisms are positive as expected but not significant. Additionally, the interaction term between allowance and enforcement is negative and significant, which is not expected. In specification 3, my preferred specification, I include linear state time trends, to account for the possibility that the effects of mandates or allowances are confounded by underlying time trends in the state. By and large the results are similar to the other two specifications, though allowance and its interaction with enforcement intensity are is no longer significant. I conclude that these results are suggestive that mandates and allowances are having an effect, though mandates are never significant and allowances are only significant in specification 2.

Given that that there is suggestive evidence that mandates and allowances increase the probability of a health insurance order in the child support agreement, the question remains whether this results in improved health insurance outcomes. This is the second question discussed earlier in the paper: whether health insurance mandates, allowances, and enforcement mechanisms result in higher rates of any insurance, higher rates of private coverage, and lower rates of public coverage. I first discuss the effect of mandates and allowances on private coverage. The child support laws specifically require the parents to provide private coverage for the child if it is available at reasonable cost, so this is likely to be the largest effect. Table 1.5 shows three specifications for probit regressions estimating the impact of the laws on the probability of private coverage. As in Table 1.4, specification 1 excludes the enforcement variables, specification 2 adds in the enforcement variables, and specification 3 includes the enforcement variables and linear state time trends. In each of the specifications shown in Table 1.5

TABLE 1.5: Private Coverage

	(1)	(2)	(3)
Mandate	0.058	0.064	0.053
	(0.031)	(0.030)	(0.058)
Allowance	-0.013	-0.002	-0.056
	(0.036)	(0.037)	(0.057)
Enforcement Intensity		-0.009	-0.008
		(0.015)	(0.024)
Mandate*Enforcement		0.005	0.001
		(0.014)	(0.027)
Allowance*Enforcement		0.001	-0.005
		(0.014)	(0.026)
Female	-0.001	-0.002	-0.002
	(0.009)	(0.009)	(0.009)
Black	-0.129	-0.129	-0.128
	(0.014)	(0.014)	(0.014)
Hispanic	-0.115	-0.115	-0.118
	(0.025)	(0.026)	(0.024)
Other Race	-0.105	-0.105	-0.101
	(0.030)	(0.030)	(0.030)
<HS Education	-0.247	-0.247	-0.243
	(0.021)	(0.021)	(0.021)
Some College	0.099	0.099	0.100
	(0.012)	(0.012)	(0.011)
Bachelors or more	0.286	0.286	0.287
	(0.021)	(0.021)	(0.021)
Divorce	0.033	0.033	0.030
	(0.014)	(0.014)	(0.014)
Medicaid/SCHIP Eligibility	-0.465	-0.464	-0.577
	(0.091)	(0.091)	(0.093)
Unemployment	-0.024	-0.024	-0.034
	(0.012)	(0.013)	(0.014)
Year dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	Yes

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

mandate has a positive impact on private coverage as expected. However, the effect is never significant. In each specification, allowances, enforcement variables and the interaction terms are both small and not significant.

Question two also asks whether mandates, allowances, and enforcement mechanisms lead to decreases in public coverage. If mandates and allowances succeed in moving people off public health insurance and onto private insurance then the marginal effects for mandate and allowance will be less than zero. If enforcement variables play a role then the marginal effect on enforcement will be less than zero too. I find that the marginal effects on mandate are negative as anticipated (Table 1.6). They are significant in the first two specifications, though they are no longer significant with the addition of state time trends. The marginal effects for allowance are not significant and become very small with the addition of the enforcement variables in specification 2. Although the enforcement variable and the interaction of enforcement with mandate are significant in specification 2, they lose significance in specification 3, which is the preferred specification.

The results from Tables 1.5 and 1.6 indicate that mandates may be associated with increases in private and decreases in public coverage, though these marginal effects are not significant in the preferred specification. The final component of question 1 asks whether overall coverage increase as a result of mandates, allowances, and enforcement mechanisms. I do not find any significant effects of mandates, allowances or enforcement mechanisms on overall coverage rates (Table 1.7).

C. ANALYSIS OF WHO PROVIDES COVERAGE

First I look descriptively at the relationship between state laws and which parent is providing coverage, which is an extension of the second question. In a parallel analysis to question 2, children whose parents divorce in states and years with mandates do not have significantly different rates of

TABLE 1.6: Public Coverage

	(1)	(2)	(3)
Mandate	-0.075	-0.081	-0.060
	(0.032)	(0.034)	(0.053)
Allowance	0.045	0.014	0.004
	(0.038)	(0.048)	(0.050)
Enforcement Intensity		0.026	0.010
		(0.010)	(0.022)
Mandate*Enforcement		-0.021	0.000
		(0.009)	(0.025)
Allowance*Enforcement		-0.005	0.026
		(0.012)	(0.027)
Female	0.001	0.001	0.002
	(0.009)	(0.009)	(0.009)
Black	0.148	0.148	0.145
	(0.013)	(0.013)	(0.013)
Hispanic	0.080	0.080	0.081
	(0.025)	(0.025)	(0.024)
Other Race	0.092	0.091	0.082
	(0.022)	(0.022)	(0.021)
<HS Education	0.131	0.131	0.129
	(0.014)	(0.015)	(0.015)
Some College	-0.068	-0.068	-0.066
	(0.010)	(0.010)	(0.011)
Bachelors or more	-0.270	-0.269	-0.264
	(0.026)	(0.026)	(0.025)
Divorce	-0.043	-0.043	-0.040
	(0.011)	(0.011)	(0.011)
Medicaid/SCHIP Eligibility	0.436	0.435	0.531
	(0.070)	(0.070)	(0.052)
Unemployment	0.018	0.015	0.022
	(0.012)	(0.013)	(0.010)
Year dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	Yes

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

TABLE 1.7: Any Insurance Coverage

	(1)	(2)	(3)
Mandate	-0.017	-0.020	-0.019
	(0.028)	(0.029)	(0.060)
Allowance	0.033	0.021	-0.045
	(0.027)	(0.037)	(0.050)
Enforcement Intensity		0.016	-0.002
		(0.010)	(0.018)
Mandate*Enforcement		-0.012	0.008
		(0.011)	(0.020)
Allowance*Enforcement		-0.005	0.021
		(0.014)	(0.023)
Female	-0.002	-0.001	-0.001
	(0.005)	(0.005)	(0.005)
Black	0.025	0.025	0.024
	(0.016)	(0.016)	(0.016)
Hispanic	-0.023	-0.023	-0.024
	(0.015)	(0.015)	(0.014)
Other Race	-0.010	-0.011	-0.013
	(0.023)	(0.023)	(0.024)
<HS Education	-0.082	-0.082	-0.079
	(0.012)	(0.012)	(0.012)
Some College	0.037	0.037	0.040
	(0.014)	(0.014)	(0.013)
Bachelors or more	0.085	0.085	0.091
	(0.019)	(0.019)	(0.018)
Divorce	-0.008	-0.008	-0.008
	(0.009)	(0.009)	(0.009)
Medicaid/SCHIP Eligibility	-0.033	-0.033	-0.051
	(0.048)	(0.048)	(0.054)
Unemployment	-0.006	-0.008	-0.011
	(0.006)	(0.006)	(0.009)
Year Dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	Yes

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

private coverage provided by their mothers but are 5 percentage points less likely to have private coverage provided by their fathers than children whose parents separated or divorced in states or years with no mandate or allowance (Appendix Table 1.1.) Children in states and years with allowances are five percentage points more likely to have private coverage provided by their mothers and are 5 percentage points less likely to have private coverage provided by their fathers than children whose parents separated or divorced in states or years with no mandate or allowance.

Next, I examine the effect of state policies on which parent provides coverage in a multivariate context. When the dependent variable is whether the mother provides private coverage, I find that in the first two specifications the marginal effect for mandate is positive and significant (Appendix Table 1.2). In the third specification, which adds in linear state time trends the marginal effect is still positive but is no longer significant. In all three specifications, marginal effects on allowances, the enforcement mechanisms, and the interactions terms are not significant. When the dependent variable is whether the father provides coverage, none of the policy variables are statistically significant (Appendix Table 1.3).[6]

Finally, I look descriptively at the relationship between the presence of a health insurance order in the child support agreement and which parent provides coverage. Children whose have an order in the child support agreement are not significantly more likely to have private coverage provided by their mother, but they are 19 percentage points more likely to have private coverage provided by their father (Appendix Table 1.4). As discussed in question 3 above, this is entirely consistent with the health insurance order having an impact, but it is not necessarily a causal effect since fathers more likely to provide coverage may be more likely to put a health insurance order in their child support agreement.

[6] Additionally in a multinomial probit using specification 2 where the base case is the mother providing coverage, the marginal effects on the father providing coverage are not significant for any of the legal variables. When the base case is uninsurance, the marginal effect of a mandate is significant and positive for the mother providing coverage but not significant for the father proving coverage.

V. DISCUSSION AND POLICY IMPLICATIONS

This study is the first to collect data on how health insurance mandates and their enforcement mechanisms in child support laws vary by state and year and accordingly the first to evaluate the effectiveness of these laws and their associated enforcement mechanisms. I first look the first necessary step for laws to impact coverage: whether health insurance mandates in child support laws increase the probability of orders for health insurance in the child support agreement. I am not able to show that mandates and allowances increase orders for health insurance in the child support agreement, but there is some suggestive evidence that there could be an impact. Enforcement variables do not have a significant impact.

When I look at the impact of state laws for mandates, allowances, and enforcement mechanisms on overall coverage, there is evidence that mandates increase private coverage and decrease public coverage, though results are not significant in all specifications. Allowances and enforcement mechanisms do not seem to play a role in altering the type of coverage. When I look at which parent provides coverage, mandates increase provision of private coverage by mothers, though significance depends on the specification, but there is no significant impact on whether fathers provide coverage.

The second step necessary for laws to impact coverage is for health insurance orders in the child support agreement to lead to higher coverage rates, a greater likelihood of private coverage, and a lower probability of public coverage. This can be examined only in a descriptive manner since the probability of an order is likely to be endogenous. I find that having a health insurance order in the child support agreement is positively associated with having private or any insurance coverage and is negatively associated with probability of public coverage. Furthermore, having an order is positively associated with the father providing the private coverage.

Although based on the theoretical framework, health insurance mandates in child support agreements should increase the prevalence of orders in the child support agreement to provide coverage, both realities of the legal system and lack of availability of private coverage to the parents of uninsured and publically insured children may explain why no effect is found. If parents create child support agreements outside of the formal legal system and merely have their agreements rubber stamped by a judge, the agreements may not follow state laws. And if laws are new, they may be unknown to the parents who are drawing up the agreement. Additionally, health insurance mandate laws state that coverage must be available at reasonable cost for it to be required. If the parents of uninsured and publically insured children are lower income, they are unlikely to have access to private coverage at high rates. Thus the lack of impacts seen in this study are not entirely unexpected.

The question remains whether policy makers should respond to the lack of impacts by eliminating these mandates or working to improve their effectiveness. If the reason that the laws do not have a clear effect is a lack of legal oversight in the divorce process, than this is a problem that can be solved by hiring more judges or having closer oversight by other officials so that more time can be spent insuring that each case follows the laws. However, if the reason that laws do not have an effect is that parents lack access to private coverage, it is unlikely that health insurance mandates in child support laws can be effective, and other ways of increasing coverage for uninsured children would be preferable.

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APPENDIX

APPENDIX TABLE 1.1: The Relationship Between a Child Support Health Insurance Mandate and Insurance Status, Private Coverage by Type

	Mandate		Allowance		Neither
Coverage Type					
Private, Mom	43.7		47.7	**	42.8
Private, Dad	18.9	**	18.8	**	24.1
Public	21.9	**	21.1		19.3
Uninsured	15.5		12.4		13.8
N	5,281		2,017		3083

Source: 1990-2004 panels of the Survey of Income and Program Participation

* p<.05, ** p<.01

Notes: This table tabulates percent of children with each type of health insurance coverage for children whose parents divorced or separated in states and years with a mandate, whose parents divorced or separated in states and years with an allowance and whose parents divorced or separated in states with neither. "Neither" is the reference group for significance tests.

The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years. Sampling weights are used.

APPENDIX TABLE 1.2: Private Coverage, Provided by Mother

	(1)	(2)	(3)
Mandate	0.07	0.11	0.02
	(0.03)	(0.03)	(0.03)
Allowance	0.02	0.04	-0.02
	(0.04)	(0.04)	(0.04)
Enforcement Intensity		-0.02	-0.02
		(0.01)	(0.01)
Mandate*Enforcement		-0.01	0.01
		(0.01)	(0.01)
Allowance*Enforcement		0.00	0.01
		(0.01)	(0.01)
Female	-0.01	-0.01	0.00
	(0.01)	(0.01)	(0.00)
Black	-0.04	-0.03	-0.03
	(0.02)	(0.02)	(0.02)
Hispanic	-0.05	-0.05	0.02
	(0.02)	(0.02)	(0.01)
Other Race	-0.06	-0.06	0.01
	(0.03)	(0.03)	(0.02)
<HS Education	-0.21	-0.21	0.08
	(0.02)	(0.02)	(0.01)
Some College	0.07	0.07	-0.04
	(0.01)	(0.01)	(0.01)
Bachelors or more	0.19	0.19	-0.08
	(0.02)	(0.02)	(0.02)
Divorce	0.05	0.05	-0.01
	(0.02)	(0.02)	(0.01)
Medicaid/SCHIP Eligibility	-0.37	-0.36	0.03
	(0.07)	(0.07)	(0.05)
Unemployment	-0.01	-0.01	0.01
	(0.01)	(0.01)	(0.01)
Year dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	No

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

APPENDIX TABLE 1.3: Private Coverage, Provided by Father

	(1)	(2)	(3)
Mandate	-0.01	-0.04	0.04
	(0.02)	(0.02)	(0.06)
Allowance	-0.03	-0.04	-0.01
	(0.03)	(0.03)	(0.06)
Enforcement Intensity		0.00	-0.02
		(0.01)	(0.03)
Mandate*Enforcement		0.01	0.01
		(0.01)	(0.03)
Allowance*Enforcement		0.01	-0.01
		(0.02)	(0.03)
Female	0.01	0.01	-0.01
	(0.01)	(0.01)	(0.01)
Black	-0.11	-0.11	-0.03
	(0.02)	(0.02)	(0.02)
Hispanic	-0.09	-0.09	-0.05
	(0.03)	(0.03)	(0.02)
Other Race	-0.06	-0.06	-0.06
	(0.02)	(0.02)	(0.03)
<HS Education	-0.10	-0.10	-0.21
	(0.02)	(0.02)	(0.02)
Some College	0.03	0.03	0.07
	(0.01)	(0.01)	(0.01)
Bachelors or more	0.05	0.05	0.19
	(0.01)	(0.01)	(0.02)
Divorce	-0.01	-0.01	0.04
	(0.01)	(0.01)	(0.02)
Medicaid/SCHIP Eligibility	-0.08	-0.09	-0.45
	(0.04)	(0.04)	(0.07)
Unemployment	-0.01	-0.01	-0.02
	(0.01)	(0.01)	(0.01)
Year dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
State Time Trends	No	No	No

Source: 1990-2004 Panels of the Survey of Income and Program Participation

Notes: Regressions are probits. Numbers presented are marginal effects. The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years.

APPENDIX TABLE 1.4: The Relationship Between a Child Support Health Insurance Order and Insurance Status, Private Coverage by Type

	HI Order		No HI Order
Coverage Type			
Private, Mom	42.8		45.2
Private, Dad	33.9	**	14.6
Public	12.7	**	24.7
Uninsured	10.7	**	16.1
N	6,806		3,982

Source: 1990-2004 panels of the Survey of Income and Program Participation

* p<.05, ** p<.01

Notes: This table tabulates type of insurance coverage for children with and without a health insurance order in their child support agreement.
The sample consists of children age 0-18 whose parents are divorced or separated, who live with their mothers, and whose parents have been divorced or separated no more than 10 years. Sampling weights are used.

CHAPTER 2

MARRIED TO YOUR HEALTH INSURANCE? THE RELATIONSHIP BETWEEN MARITAL DISRUPTION AND HEALTH INSURANCE

Jamie Rubenstein Taber[7], Elizabeth Peters[8], and Kosali Simon[9]

ABSTRACT

Changing marital status is an important source of health insurance change for both men and women. However, neither the health nor family economics literatures have examined this phenomenon. We document how health insurance status changes over time for men, women, and children as divorce and separation occur, as well as the likely causes of these changes. Using the 1996, 2001 and 2004 panels of the Survey of Income and Program Participation, we tabulate cross-sectional insurance status for people of varying marital histories. We then follow individuals over time as they go through separation or divorce to observe how their health insurance changes. We find large differences in health insurance across marital status groups. When we look longitudinally at individuals we find smaller changes in overall coverage, but these smaller changes mask large changes in type of coverage as people divorce or separate. Men and women both show increases in private coverage in their own names, and men, women and children show large decreases in dependent coverage. Children and, to a lesser extent women, show increases in public coverage around the time of divorce or separation.

I. INTRODUCTION

In 2010, 49.9 million Americans lacked health insurance (US Census Bureau, 2011), and, as documented below, coverage rates differ substantially by marital status. This paper investigates the impact of marital disruption on health insurance, a topic on which there is surprisingly little evidence,

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especially for child and male populations. Adults who are divorced or separated have significantly lower insurance rates than married individuals (Berk and Taylor ,1984; Willis and Weir, 2002,; Zimmer, 2007) and children with divorced or separated parents have lower insurance rates than those with married parents (Monheit and Cunningham, 1992; Weinick and Monheit, 1999). The majority (60%) of individuals younger than age 65 are covered by employer provided insurance. But because employers typically offer health insurance to the worker's spouse and children, about half of those covered by employers receive it as dependents (Burkhauser and Simon, 2010). New provisions in the Patient Protection and Affordable Care Act (PPACA) are expected to make health insurance more available within the workplace and outside of it and mitigate some of the detrimental impacts of marital disruption.[10] However, because employers will remain the main source of coverage for the non-elderly population (CBO, 2010), marital disruption is likely to continue to lead to some instability in insurance coverage, as some dependents become ineligible for coverage under their former spouse's insurance. This family-based system exposes families undergoing marital instability to coverage vulnerabilities.

About one million divorces occur in the U.S. each year (NCHS, 2007), so the number of individuals who are potentially at risk for health insurance change associated with marital disruption is large. Empirical evidence documents that divorce leads to a substantial loss in income, especially for female headed households (Bianchi et al, 1999), and the discussion above suggests that marital disruption may also be an important source of health insurance loss or churning. This is especially germane for special populations such as women and children, as well as those with less education who traditionally face fewer options for employer based coverage due to income and employment

[10] Although the Affordable Care Act is currently under Supreme Court consideration, we anticipate that in future drafts we will be able to make more definitive statements about the relationship to federal health reform when more is known later this summer. For now, we keep this discussion general.

characteristics. It is critical that we understand how life course event, specifically marital disruption, shape the dynamic patterns of coverage.[11]

The recent past has witnessed erosion of employer provided coverage and rising out of pocket expenses even among the currently insured (Gabel et al, 2009). The population's health insurance status also exhibits a high degree of churning (Klein et al, 2005), which is concerning particularly because of the association between interruptions in coverage and worsened health outcomes (Harman et al, 2007). Coverage loss due to marital disruption or parental marital disruption has the potential to significantly contribute to churning.

In this paper we conduct a systematic longitudinal study of marital change and health insurance for non-elderly populations. This question is relevant to the broader literature that investigates the consequences of marital disruption. It is particularly salient because of the association between health insurance coverage and health outcomes and because of the prevalence of employer coverage and the family-based structure of that coverage. Specifically, we examine three questions: (1) how does coverage vary across individuals by current marital status; (2) what is the change in health insurance coverage after marital dissolution, for men, women and children; and (3) how do these experiences differ by education, a characteristic that is closely associated with both employment and marriage outcomes? The method we use to estimate the relationship is similar to that used in the literature studying the pattern of earning changes before and after job loss (Couch and Placzek, 2010; Jacobson, LaLonde and Sullivan, 1993) and the impact of divorce on earnings (Couch et al 2011). Our findings in this area contribute to the literature on family marital transitions and to the health economics literatures on access to health insurance.

[11] Note that entry into marriage is likely to increase eligibility for dependent coverage as well as overall coverage rates. However, that topic is beyond the scope of this paper.

Our paper proceeds as follows. First, we survey the relevant prior research. Second, we discuss the factors related to change in health insurance after marital disruption. Third, we discuss the hypotheses we test and our reasoning behind them. Fourth, we describe the data we use as well as our key variables. Fifth, we present our methods and results. Finally after presenting the results of our empirical investigation, we discuss what we learn from our findings and the drawbacks to our approach.

II. RELEVANT PRIOR LITERATURE

The Link between Health Insurance and Marital Status

In the U.S. health insurance is most frequently provided through an employer. In 2005, 32 percent of those under age 65 were covered as the primary beneficiary through their employer's health insurance plan, and 30 percent are covered as a dependent (Pollitz, 2006), leading to over 60 percent of the non-elderly receiving health insurance through employers. Private employer health insurance is the only health insurance coverage type that is explicitly family based. Medicaid or other public programs provide insurance for 15 percent of non-elderly Americans, and only 5 percent are covered through private non-group plans.

Because many individuals receive health insurance as dependents on their spouses' health insurance plans, we would expect health insurance rates to decrease after divorce, as this source of insurance is no longer available. Some previous research supports this hypothesis, though work in this area has been very limited. Berk and Taylor (1984) found that in 1977, married women were only half as likely to be uninsured compared to divorced women. Divorced women were also more likely to be on Medicaid. A 2002 working paper (Willis and Weir 2002) found that near-elderly divorced or never married women were less likely to be insured that married women. In the only publication we are aware of looking at the relationship between marital status change and health insurance, Zimmer (2007) finds

that women are 13 percentage points more likely to lose insurance after a divorce compared to women who remain married. No research to date has examined how type of coverage changes over time relative to marital disruption or how children's coverage changes when their parents experience marital disruption.

Family structure is an important determinant of the likelihood of having health insurance for children as well. Weinick and Monheit (1999) found that one-fifth of children in single parent families, including both those whose parents were previously married and whose parents never married, were uninsured. In contrast, children in intact homes were the least likely to be uninsured (Monheit and Cunningham 1992), and these children are more likely to be covered by private insurance. Heck and Parker (2002) found that 35 percent of single-mother families have employer-sponsored insurance, compared to 71 percent of two parent families.

Socio-demographic Correlates of Adult and Child Health Insurance Coverage

The health insurance status of adults varies significantly by socio-demographic characteristics such as employment status, income, education, marital status and race/ethnicity. For example, wealthier people and employed people have health insurance at higher rates. Only 7 percent of households with income over $75,000 are uninsured compared to 25 percent of households with income under $25,000. Of those who work full-time, 17 percent are uninsured while 25 percent of those who do not work are uninsured (U.S. Census Bureau, 2008).

With respect to coverage for children, researchers have focused attention on 'vulnerable' populations and their access to health care (Pollack and Kronebusch, 2005). These populations include welfare recipients and low-income families who are ineligible for welfare, racial and ethnic minorities, individuals with disabilities, substance abuse disorders, and chronic illnesses, and immigrants. The link between low income and the lack of health insurance has been well established (Currie, Decker and Lin

2008; Heck and Parker 2002; Kaestner and Kaushal 2003; and Weinick and Monheit 1999). The literature has also established the impact of economic recession and unemployment on health insurance coverage rates, finding that there are notable differences on the impact for men, women and children (Cawley and Simon, 2005).

Another socioeconomic factor along which health insurance rates varies considerably is educational attainment. Heck and Parker (2002) and Monheit and Cunningham (1992) examined the impact of parental education on the presence and type of insurance coverage and found that children with better educated parents were more likely to have private insurance.

III. CONCEPTUAL MODEL OF HEALTH INSURANCE AND MIRTIAL DISRUPTION

For prime-age adults health insurance status depends on employment status (access to own name coverage), marital status (access to dependent coverage), health status (which may change the demand for health insurance as well as the opportunities to receive health insurance), and other factors, such as family income and state rules governing availability of public health insurance. Similarly health insurance status for children will depend on parents' choices and constraints (including parents' marital status), which are a function of incomes, state Medicaid eligibility rules and child support policies, and parents' access to employer health insurance.

The most direct link between marital dissolution and health insurance for adults is the fact that after divorce a former spouse is no longer eligible to be covered as a dependent.[12] Because 25 percent of women compared to 13 percent of men are covered as dependents (Salganicoff, 2008), this mechanism is likely to affect women more than men. The size of the direct effect may also depend on whether the

[12] The 1986 Consolidated Omnibus Budget Reconciliation Act (COBRA) stipulates that former spouses are allowed to continue to purchase employer health insurance through the employer for 18 months following divorce, but the individual is responsible for paying the full cost of the policy, plus a small administrative fee. As a result COBRA is unaffordable for many who are recently divorced or newly unemployed.

disruption is a separation or a divorce. Spouses who are separated are still eligible to be covered as dependents until they are divorced. However, it is possible that the acrimony and lack of trust that often accompanies marital dissolution might lead the spouse with the primary coverage to change from family coverage to single coverage thus dropping the dependent spouse from the policy. Alternatively, the spouse with dependent coverage might have access to employer coverage through his or own job and may switch to that coverage upon separation. Children can still be legally covered as dependents, whether or not they actually live with that parent, but it may not be cost effective to cover the child if that parent's employer plan is tied to a local provider network that is not where the child lives.

Other mechanisms that link marital dissolution and health insurance are indirect and are more likely to apply to both divorce and separation. One obvious mechanism is through changes in employment. The literature finds that women's employment increases after marital dissolution (Couch et al, 2011; Johnson & Skinner, 1986). Some women may find employment in marginal jobs that do not provide insurance, but, especially because hours increase as well as labor force participation, jobs held after a marital dissolution are more likely to include health insurance as a benefit. This pathway may have the largest impact for women, but because children can be included as a dependent on their mother's insurance, increased employment of mothers could help maintain health insurance coverage for children.

Another pathway that links the change in marital status and health insurance is the general decline in income that accompanies marital dissolution, especially for women. Bianchi et al. (1999) find that the income to needs ratio for mothers fell by more than 25 percent following marital dissolution. Because men's own earnings are generally higher than women's earnings and because the children live with the mother in the vast majority of cases (82%) (U. S. Census Bureau 2011), the standard of living for men falls much less than for women. Thus, based on the literature that finds a link between low

income and lack of health insurance, we expect to find a larger effect of marital dissolution on health insurance coverage for women. Declines in income may be mediated by public assistance programs such as Temporary Assistance for Needy Families (TANF), which could allow newly single parents to afford private coverage.

Marital status changes also can affect eligibility for public health insurance, since Medicaid and the State Children's Health Insurance Program (SCHIP) are limited to low income individuals. The exact populations eligible for public health insurance vary by state and over time, but generally low income children, and to a lesser extent, low income parents, are potentially eligible for Medicaid or SCHIP Falls in income resulting from marital disruption may lead to eligibility for public coverage as family income declines, though child support payments and entry into the labor force may reduce the drop in income associated with marital dissolution.[13]

The mechanisms outlined above suggest that there are likely to be important modifiers to the effect of marital status on health insurance that are relevant for different subpopulations. One factor that explains how adults are affected during marital transition is the labor market opportunity set. Those who have more education and more recent work experience are likely to have better access to jobs that allow them to obtain or retain employment based health insurance, even if they relied on a spouse to provide health insurance prior to marital dissolution. Children can also affect the labor market opportunities of adults and thus their pattern of recovery following marital disruption. The spouse who is more likely to retain custody of young children will face greater difficulties in labor market activities; women are much more likely to be in this situation following divorce than are men. Health insurance for children will be impacted by the labor market opportunities of parents as well as eligibility for public health insurance, which varies with parental income.

[13] Child support policies may also affect which parent provides health insurance or directly increase private coverage. In other research Taber 2011 examines the impact of child support laws requiring parents to provide private health insurance coverage as part of the child support agreement.

In summary, the fact that many individuals obtain health insurance through marriage to a worker with access to employer coverage implies a direct impact of marital dissolution on presence and type of health insurance. Marital dissolution may also have secondary impacts that have health insurance consequences; labor market entry may lead to an increase in private own name coverage, while falls in income resulting from the dissolution may result in eligibility for public coverage, particularly for women and children. All of these effects are likely to me mediated by educational status. Those with greater labor market opportunities are better able to provide coverage in their own name through a new or existing job, while those with less education are more likely to be eligible for public coverage. Factors that affect health insurance for children differ from those for adults due to differences in legal frameworks that allow employers to cover children regardless of custodial relationships, and because of greater availability of public health insurance for children.

IV. HYPOTHESES

Considering the factors associated with health insurance change following marital disruption leads us to propose three sets of testable hypotheses. First, we expect to see significant variation in presence and type of health insurance between groups of different marital status. We expect that those who are separated or divorced will have lower coverage rates as well as a different mix of coverage types compared to those who are married. We expect that these cross sectional differences will be larger than estimates from longitudinal data comparing health insurance before and after marital disruption. This is because those who are divorced or separated are likely different from those who are always married in unobserved ways. For example, individuals who are divorced or separated are likely to have lower socioeconomic status.

Second, our analyses are conducted separately for men, women without children, women with children, and children because we expect that there are systematic differences in how each group is affected. In particular, we expect women's health insurance to suffer greater declines after marital disruption because women are more likely to have been dependents under husband's policies and because of women's weaker labor market ties, particularly with the presence of young children in the family. For women, we also expect to see changes in type of coverage (from dependent to own name employer coverage and from private to public coverage under Medicaid) that are larger than for men. We also expect that there will be different mechanisms operating for women with and without children—women with children have lower labor supply response possibilities, and also have more opportunities to receive public coverage. We expect that children's coverage will not suffer as much, partly because of access to coverage from either parent following divorce and because of public policy. Medicaid and SCHIP cover children to higher income levels than adults, and state laws require health insurance to be addressed in child support agreements in most states (Taber 2011). We expect to see that children's coverage is not affected as much as adult coverage, partly because of the greater availability of public health insurance for children that acts as a safety net.

Third, in addition to expecting differences between men, women with and without children, and children, we expect to see differences by educational attainment. Those with lower education will see greater declines in health insurance following marital disruption because of fewer labor market opportunities. Both higher and lower education groups are likely to lose dependent coverage around the time of a marital dissolution, but those with more education are more likely to be able to obtain private coverage either through their original job or through a new job. Those with lower education are more likely to have increases in public coverage though this will only impact children and, to a lesser degree, women with children.

V. DATA

To examine the links between changing marital status and health insurance, we use data from the 1996, 2001, and 2004 panels of the Surveys of Income and Program Participation (SIPP), which cover the years from 1996-2007. Each SIPP panel interviews a nationally representative sample of households in the U.S. over a period of 2.5-4 years. For each panel, all individuals in the household over age 15 are interviewed, and if they are not available, a proxy response is obtained. The interviews take place every four months, and information is collected about certain variables for each of the 4 months in the wave. If original household members over age 15 move to a new address, then they are followed as well. One advantage of the SIPP relative to other data sets is that it can follow individuals before and after a change in marital status with month specific observations. A second advantage is that the SIPP collects information on demographics, labor market status and income, program participation, and health insurance coverage and type for all individuals in the household.

The sample size for cross sectional analysis is 59,870 men and 66,308 women aged 23-64 who are married, divorced or separated and 67,064 children aged 0-18 whose parents are married, divorced or separated. We limit our analysis to the under 65 population because of the virtually universal coverage provided by Medicare to those over 65, and we limit our adult population to age 23 and over since many individuals between the ages of 18 and 23 are in college and likely have different factors impacting health insurance availability and choices. For our longitudinal analysis, in which we examine how health insurance changes as marital dissolution occurs, we limit our sample to all individuals married (or children of these individuals) during the first month of data who subsequently divorce or separate. There are 1,468 men, 1,835 women, and 2,618 children for whom we can observe data before and after the marital disruption event.

Based on the numbers above, there are substantially fewer men than women whom we observe both before and after divorce. This is because attrition out of the SIPP for divorced and separated men is higher than for divorced or separated women. This difference is perhaps due to the fact that men are more likely to move to a new address after marital disruption; although the SIPP makes every attempt to follow those who move out of the originally sampled household, they are not always successful. We investigate whether selective attrition may bias our findings, as those who attrit may be differentially affected in their health insurance patterns by marital status changes. We men who are no longer in the data one month after their wife reports marital dissolution are less likely to have at least some college education, less likely to have private coverage at baseline, more likely to be uninsured at baseline, more likely to have family incomes of less than 100% of the federal poverty level, and more less likely to have family incomes of more than 300% of the federal poverty level (Appendix Table 2.1). We also find some selective attrition for women, though to a lesser degree.

Although we find substantial and differential attrition, two articles that investigated whether differential attrition related to marital disruption in the SIPP biases estimates found that bias is minimal. Lillard and Panis (1998) found attrition in the Panel Study of Income Dynamics was higher among those with marital disruption, but when they study the consequences of that selective attrition for an illustrative example (e.g. the effect of marital status on mortality risk), "the biases that are introduced by ignoring selective attrition are very mild" (p.437). Zabel (1998) also finds selective attrition in the SIPP but concludes "(t)he estimation results for a model of attrition and labor market behavior show little indication of bias due to attrition" (p.479). Nevertheless, we are cognizant that selective attrition could lead us to underestimate of the effect of marital disruption on health insurance loss if the most vulnerable leave the sample.

Marital Status Variables. In each wave, the SIPP asks current marital status and the marital status in each of the previous 3 months, yielding monthly data on marital status. A complication to studying marital status dynamics is the ambiguity of the survey question. The SIPP respondents are asked "What is your current marital status?" The respondent could take this to refer to the legal marital status, particularly with regard to separation, or to a perception about his or her situation. As a result we also consider an alternative way to capture a marital disruption that is based on two people sharing the same residence. Specifically, we know the address of each person initially in the household, so we can also construct an indicator for the month the husband and wife are no longer living together.[14]

There are two important issues to consider when choosing which type of marital status to follow. The first is whether we want to focus on divorce, separation, or both. A spouse who is separated, but not divorced is still legally entitled to be covered as a dependent on employer coverage. However, there are a number of transactional and emotional reasons why a change in coverage might occur during the period of separation prior to date of legal divorce. Thus we might expect to see important changes in health insurance resulting from separation as well as from divorce.

A second issue relates to measurement error in the date of separation. Because separation is a more fluid and ambiguous construct than divorce, it is more difficult to measure, and the meaning of this status may differ across individuals.[15] For example, some individuals may have a legal separation agreement and may refer to that date, while others may just report when they stopped living together or when they perceived themselves to be separated. Evidence for the ambiguous reporting of separation comes from is the fact that 30% of the divorces observed in our longitudinal data sample transition directly from marriage to divorce, without an intervening period of separation. While in some states that

[14] We limit our sample to those initially living at the same address and reporting that they are married who then report being divorced or separated at some point during the survey.
[15] For example, there are differences in the timing of reporting of separation between husband and wife. 21 % of our sample report different dates of separation.

is legally possible, most states require some waiting period or period of separation, and in practice, it takes time to legally end a marriage. Thus many cases that reported transitioning directly from marriage to divorce, in realty, had some period of separation prior to legal divorce that was not reported in the data. For these cases a measure of when the couple was no longer living together would be able to capture the period of separation.

Each measure of marital dissolution (divorce, separation, address change) captures valuable and unique information, so there is no clear 'correct' definition for our purposes.[16] In the results we present below, we do not examine separation independently from divorce for three reasons. First, sample sizes become too small for reliable estimates in some of our sub-analyses. Second, the discussion above suggests that measurement error for separation dates is likely to be much higher than for divorce dates. Thus any difference in results about health insurance coverage before and after divorce compared to separation could be due to differences in the measurement of those two types of transitions. Third, 35% of individuals with a marital dissolution are censored at separation, forming a large and diverse group of all those who experience marital dissolution in the SIPP. Some of these individuals are likely to be in short term separations that that will convert to divorce, while others are likely to be long-term separations that may never become legal divorces. Since some of these individuals are much like the divorced sample while others are different, it is not clear that we would gain much meaningful insight from treating the separated group differently from the divorced group, leading to another reason why we do not distinguish between separation and divorce in our analysis of marital disruptions.

Because of the pros and cons of different ways of measuring marital disruption, our paper uses a hybrid approach where we use the first date of reported marital status change (either divorce or separation), unless the address change happens first, in which case we use that date. Most individuals report living at a different address than their spouse at the same time that they first report divorce or

[16] This is not something people have looked at before, so we have no priors.

separation. We find that 97% of adults live at different addresses the month of reported marital dissolution when both spouses are still in the data. By contrast, 12% live at different addresses the month before reported dissolution. In our analysis, a measure of marital dissolution that is based solely on the first reported marital status change yielded similar results as the hybrid measure we use in reported results, though the latter is more closely related to health insurance loss in some analyses.

Health Insurance Variables.

In the SIPP, each household member's health insurance status and type is recorded for each month and reported every four months. For each month, we know if each household member (both children and adults) had health insurance, and, if so, its type (e.g., Medicaid/SCHIP, Medicare, an employer sponsored plan, or a non-group plan). If the person was covered by an employer sponsored plan, we know whether the person was covered as a dependent through a family member's employer. Given the ability to follow individuals over time, we are able to observe how health insurance status changes in the months or years preceding or following a divorce or separation. We are able to observe these changes for both members of the divorced or separated couple as well as for any children present in the household.

Education Variables.

The SIPP provides detailed information on the highest grade completed or degree attained for adults. The lower education group constitutes those who have at most a high school diploma or equivalent. The higher education group consists of those who have at least some college. Children are categorized based on the educational attainment of their mother.

Policy and State Contextual Variables.

To assess the potential access to insurance though changes in employment after marital dissolution, we include as controls several measures of state labor market conditions at the time,

including the unemployment rate, proxies for welfare program generosity, a variable capturing the Earned Income Tax Credit (EITC), and a measure of Medicaid generosity for children. First, we expect women to be more likely to be able to enter employment or increase hours after divorce or separation when unemployment rates are lower. To capture this construct, we include data on annual unemployment rates across states. Cawley and Simon (2005) showed that the impact of unemployment rates on health insurance differs between men, women and children.

Second, we include three measures of public programs that impact income, the probability of being on welfare, and incentives to work. We expect welfare reform to increase incentives to participate in the labor force, potentially increasing the prevalence of employer coverage and decreasing eligibility for public coverage. As proxy for the generosity of welfare programs and incentives to be on welfare, we include two dummy variables that measure whether a welfare waiver has been implemented and whether TANF has been implemented. We also include a variable measuring the phase in rate for the EITC. This variable varies by year, state, and whether there are one or more children in the family. A higher phase in rate is likely to encourage employment by low income individuals, which will impact their health insurance opportunity set.

Third, we also include a measure of SCHIP eligibility, which varies at the state, age, and year level, in our children's regressions. We do so using an 'eligibility calculator' that asses the fraction of children of each age from a representative national population would be eligible for coverage if they live in a certain state and year. This produces an index that measures policy generosity towards Medicaid that has been used in prior Medicaid/CHIP research (e.g. Gruber and Simon 2007).

VI. METHODS AND RESULTS

We investigate the relationship between marital status and health insurance using three methods: a cross sectional analysis, a longitudinal analysis, and fixed-effects multivariate regressions subset by educational attainment. Our cross sectional analysis shows differences in health insurance between those with different marital statuses at a point in time. Since many differences in health insurance status observed the cross sectional analysis are due to other differences between groups, our longitudinal analysis examines how health insurance changes around the time of marital dissolution when considering the same person. Our regression analysis controls further for time varying policy and economic variables and examines how higher and lower education groups differ in health insurance trends around the time of marital dissolution.

Cross sectional Method.

As a baseline, and for comparison with the few other studies that have been done, we first tabulate health insurance coverage by marital status or parents' marital status, separately for men, women without children, women with children, and children. Children are age 0-18 and adults are age 23-64. We use data from the first month of each SIPP panel (1996, 2001 and 2004), pooling data from all three panels together for the tabulations.

Cross Sectional Results.

The cross sectional results in Figure 2.1 show the large differences in insurance coverage rates and types of insurance by marital status and subgroup. Uninsurance is much higher for those who are separated and divorced than for those who are married (Figure 2.1, bottom right panel). The difference by marital status is largest for men who are 16 percentage points more likely to uninsured if they are divorced or separated compared to those who are married, and smallest for children who have a gap of only 5 percentage points. Women with and without children are respectively 19 and 18 percentage

points more likely to have private own name coverage if they are no longer married than if they are still married (Figure 2.1, top left panel). However men are 6 percentage points less likely have coverage in their own name if they are no longer married compared to men who are married. Men, women with and without children, and children are all much less likely to have private coverage as dependent on a family member's plan if they or their parents are divorced or separated than if they or their parents are married (Figure 2.1, top right panel). The differences ranges from 15 percentage points for men to 44 percentage points for women with children. All four groups are also more likely to have public coverage if they are no longer married (Figure 2.1, lower left panel). This differences ranges from 5 percentage points for men to 17 percentage points for children.

While these cross sectional differences are striking, we know that those who are married are different in other ways than those who are divorced or separated. Thus the results in Figure 2.1 do not tell us how health insurance status changes due to the process of marital dissolution. For example, those who are divorced or separated may have lower socioeconomic characteristics in observed and unobserved ways. Additionally, grouping people by their current marital status combines people at different stages of recovery from or declines into marital dissolution. To study our questions about how health insurance changes after marital dissolution, we turn to estimates from a statistical model applied to rich longitudinal data from the SIPP.

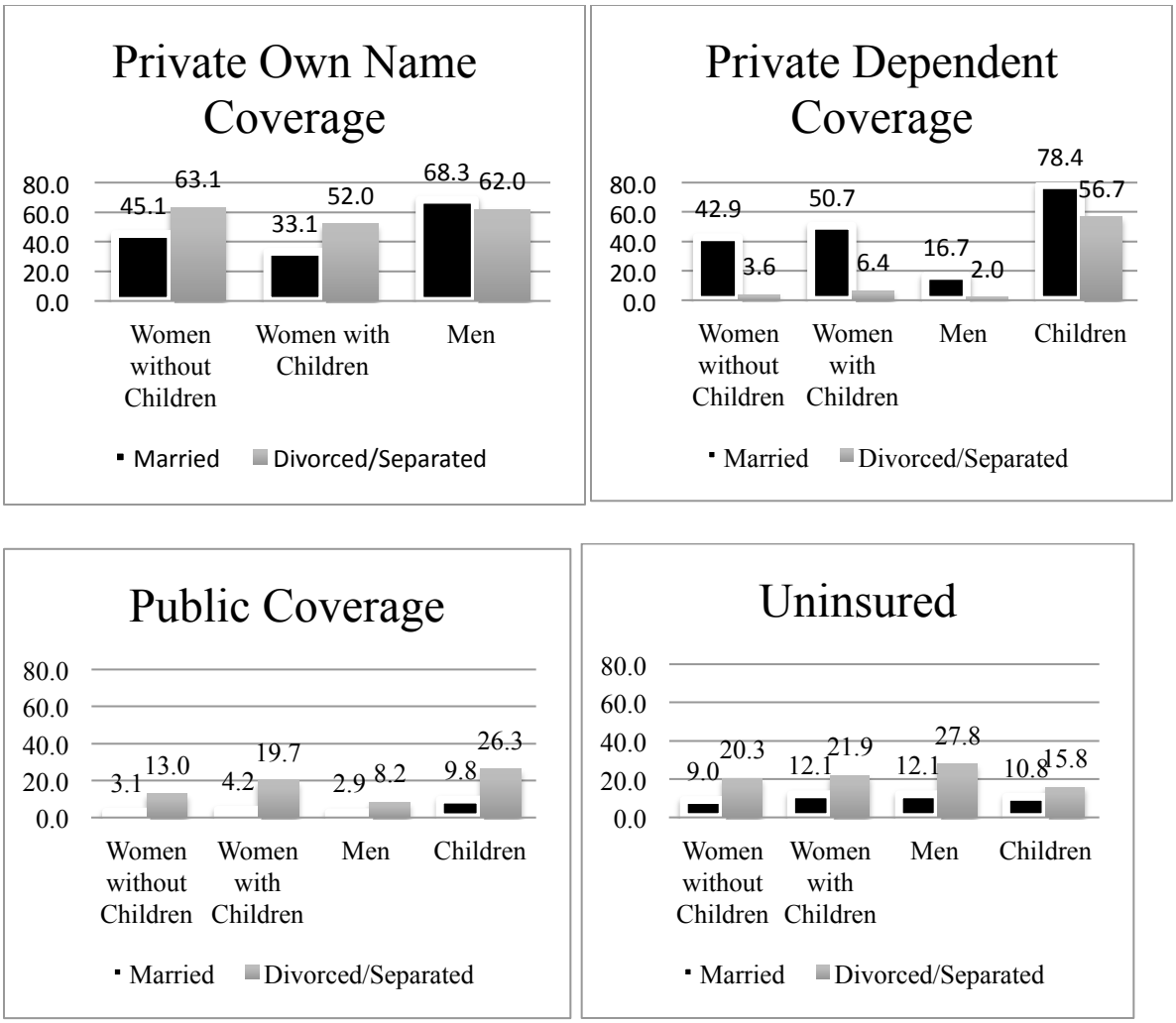

FIGURE 2.1. Current Health Insurance by Current Marital Status, 1996, 2001, 2004 Panels, Adults Age 23-64 , Children Age 0-18
Note: All figures are unadjusted means from the first month and first wave of the 1996, 2001, 2004 panels of the SIPP.

Longitudinal Analysis Method.

Our second method follows individuals and their children longitudinally over time and documents how health insurance changes before and after marital dissolution. For the analysis of the transition from marriage to separation or divorce, we begin by identifying the sample of men and women who report being married in the first month of each panel and who subsequently report being divorced or separated before the end of the panel, as well as their children. We focus on the first marital

transition event for a given individual, setting as the "zero date" the month in which they either first reported being divorced or separated or the month they first no longer shared an address with their spouse, depending on which happened first. Note that since the zero date can occur at any time during our SIPP panels (which are 2-4 years in length) the number of individuals we observe in our data set is the greatest at the zero date and smallest when considering dates farthest before or after the marital disruption date. Because the sample sizes become small as we consider durations long before or after dissolution, we concentrate our analysis on the 24 months surrounding the dissolution. We show results separately for women with children, women without children, men, and children. For the adult analysis we restrict our attention to individuals who are aged 23-64 years at the start of the panel and initially married, but experience a marital dissolution by the end of the panel (defined as either a divorce or a separation). The children's analysis is restricted to those who are aged 0-18 and whose parents are married at the start of the panel and subsequently divorce or separate.

Longitudinal Results.

Figures 2.2 and 2.3 show the changes in coverage rates experienced at various points in time relative to the date of marital separation (the zero date). We find smaller declines in overall coverage between the zero date and 24 months after it, compared to the differences in coverage rates between married and divorced/separated individuals in the cross sectional analysis. This suggests that much of the differences in the cross-sectional analysis between married and non-married groups are due to selection along other factors. We also find that the small changes in overall coverage in our longitudinal analysis in Figure 2.2 mask larger differences in the type of coverage for all groups, which we explore further in Figure 2.3.

Figure 2.2 shows modest declines on coverage in the two years before and after marital disruption for all four subgroups. The declines in coverage commence at the beginning of the two year

time frame and continue until shortly after the marital dissolution. Coverage begins to increase after the date of marital dissolution for men and children. Comparing coverage rates 12 months prior to the divorce to 12 months after the divorce, there is a 6 percentage point drop for women with children, a 3 percentage point drop for men, and a 4 percentage point drop for children. There is no decline for women without children from 12 months before the marital dissolution to 12 months after the dissolution because they are observed to experience a full recovery.

These relatively small decreases in coverage rates for women with children, men, and children seen in Figure 2.2 mask greater changes in the composition of coverage for all four groups. As seen in Figure 2.3, private own name coverage increases 13 percentage points for women without children, 12 percentage points for women with children, and 7 percentage points for men when comparing rates at 12 months before the marital dissolution to rates at 12 months after the disruption. Meanwhile, the prevalence of dependent coverage declines for all four groups. The magnitude of the declines range from a drop of 25 percentage points for women with children to 9 percentage points for men, going from 12 months before to 12 months after the date of marital disruption. During this same time frame, public coverage increases 5 to 7 percentage points for children and both groups of women, but does not increase for men.

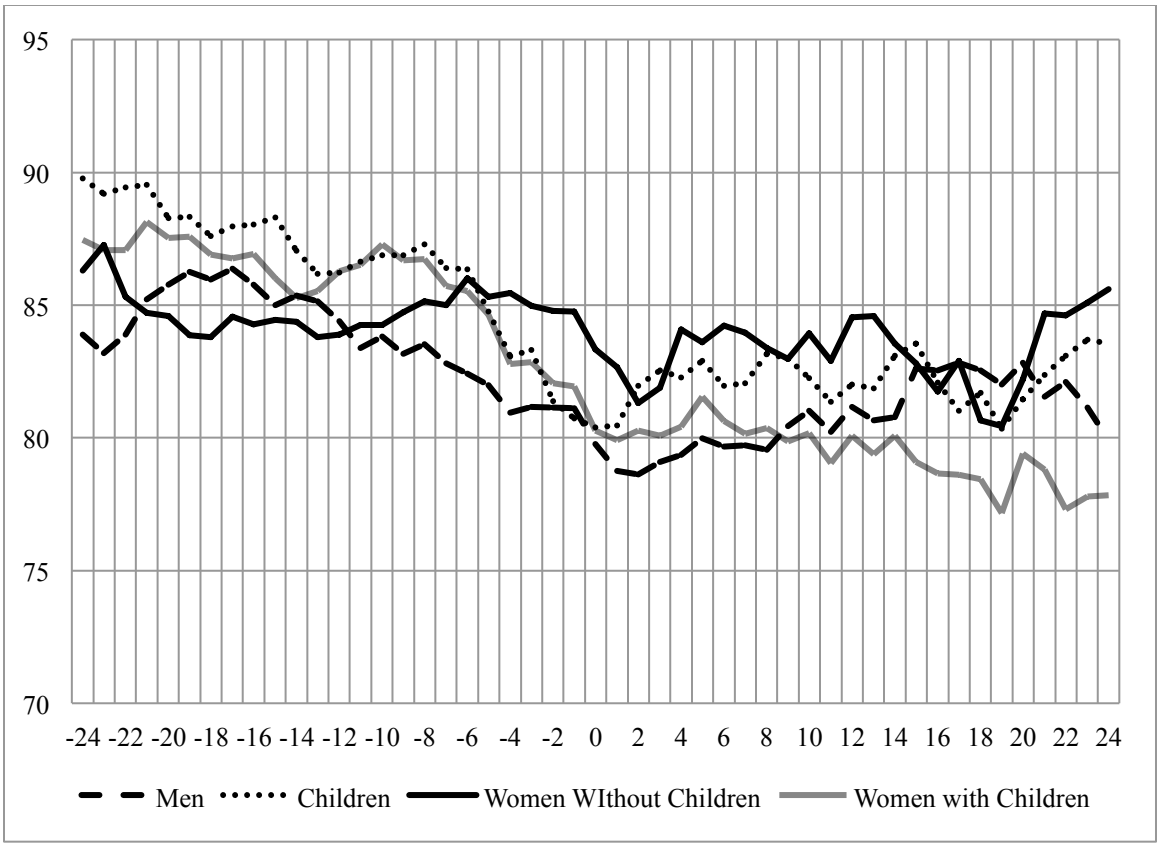

FIGURE 2.2: Any Coverage Relative to Marital Disruption Date

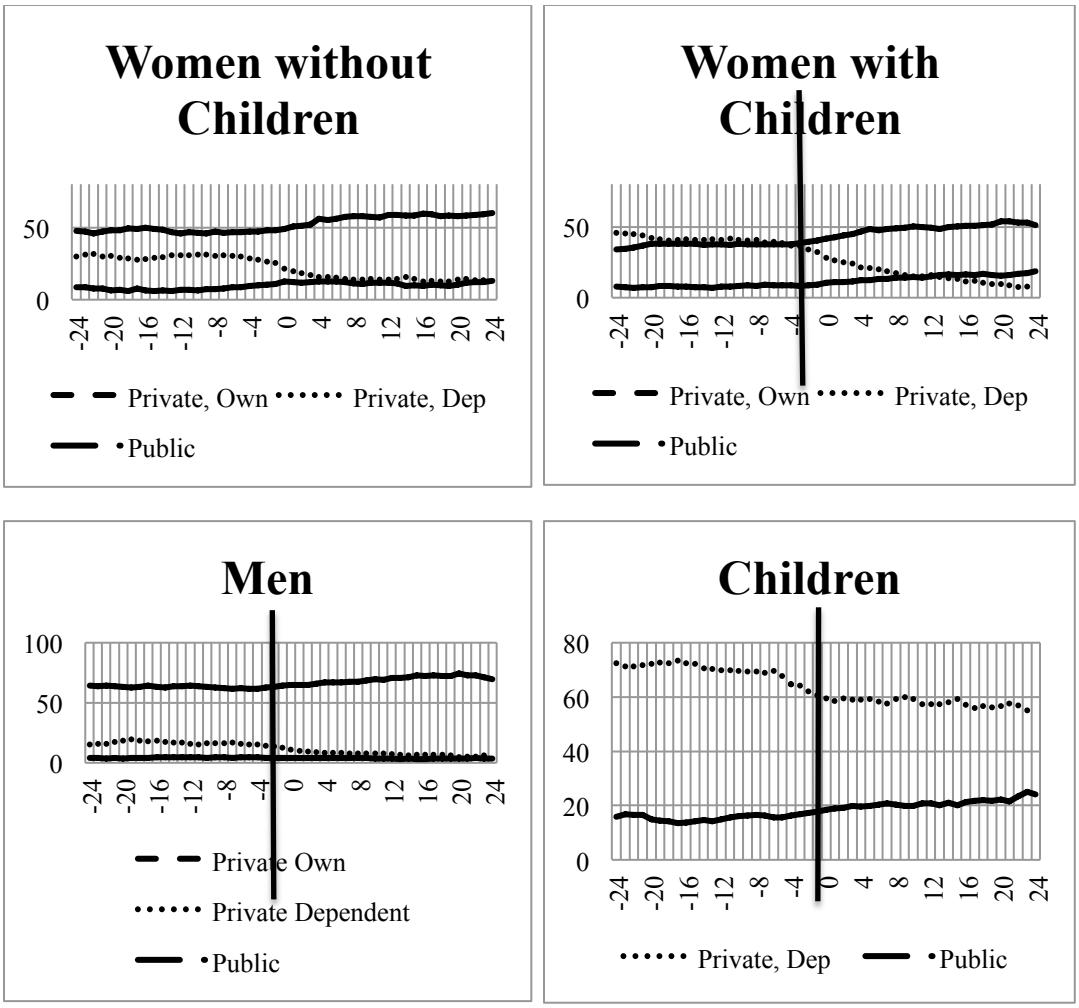

FIGURE 2.3: Type of Coverage Relative to Marital Disruption Date
Note: All figures are unadjusted means. The sample is those married in wave 1 of the panels.

Multivariate Analysis Method.

As our final method of analysis, we use regression analysis with individual fixed effects as well as control for time varying state policy and contextual factors to isolate the impact of marital status change on insurance. We use the following specification:

(1) $HI_{it} = \sum_k (D^k_{it}\delta_k) + X_{it}\beta + \alpha_i + \gamma_t + \varepsilon_{it}$

In this equation, HI represents health insurance status for person *i* at month *t*. K indexes a set of monthly dummy variables, D_{it}, that indicate the time period around marital dissolution. This provides a

flexible functional form to capture the association of marital dissolution before, in the month of, and after the event through the parameters δ_k. A vector of time varying controls at the state level $\mathbf{X_{it}}$ includes EITC, state unemployment rate, a TANF variable, and a welfare reform variable; childrens' specifications also control for a state/year/age Medicaid/SCHIP eligibility generosity index. α_i represents an individual fixed effect, γ_t is a set of calendar year dummies, and ε_{it} is a stochastic error term. All models are estimated via OLS. Models are estimated separately for different types of coverage and for different sub populations of women, men and children, and standard errors are clustered at the person level. We estimate models separately for women with and without children because of the differential access to Medicaid and different labor market challenges for mothers. Separate models are also estimated by educational attainment, as we hypothesize that the impact of marital dissolution will differ accordingly.[17]

Multivariate Results.

We present coefficients and confidence intervals of the regression results in a graphical manner in Figures 2.4-2.7. However, we show a full set of regression results (coefficients and standard errors) in Appendix Table 2.2, for the specification representing children whose parents completed at least one year of college. The coefficients on each time dummy D_{it} indicate, after accounting for individual fixed effects, as well as time varying state policy and labor market measures, how health insurance outcomes differ in each period pre and post marital disruption relative to the zero date reference period.

For all specifications we display the coefficients of interest (the δ_k) on a graph, displaying results for each of the 24 months before and after the zero date. The standard errors are displayed in the form of 'whiskers,' which represent the 95% confidence interval for that point estimate. Plotting the results this way enables us to parsimoniously display the regression coefficient results from many dummy variables,

[17] Multivariate models not subset by education yield results very close to those presented in our longitudinal descriptive results and thus are not included here.

to analyze trends, and to assess their statistical significance. There are 4 figures displayed below: Figure 2.4-- Any Coverage; Figure 2.5—Private Own Name Coverage; Figure 2.6—Private Dependent Coverage; and Figure 2.7—Public Coverage. Each figure contains two columns of graphs, one for those with high school or less, and the other for those with some college or more. Within each column, estimates are provided for subsamples of women with no children, women with children, men, and children.

Figure 2.4 shows that when comparing between the two columns, there are larger drops in coverage following marital disruption among those with high school education or less, relative to those with more education. As expected, the coverage rates of those with more education are cushioned by their better labor market opportunities. For those with a high school education or less, women with children, men, and children see statistically significant declines in coverage rates from 12 months prior to the marital disruption to 12 months after the marital disruption ranging from 6 percentage points for women with children and men to 10 percentage points for children. Declines for those with greater than a high school education are not statistically significant. Note that the declines in coverage start close to two years prior to the marital disruption date and continue well past that date. This suggests that declines in coverage may not be entirely caused by the marital disruption and may instead be a part of a larger set of circumstances leading into marital disruption that may involve job loss, worsening health, or other challenges.

In terms of private own name coverage, Figure 2.5 shows that while rates are relatively constant for the lower education groups around the time of marital disruption, significant increases in private own name coverage are seen for those with at least some college education for all three populations of adults. All else equal, women without children increased coverage by 15 percentage points, women with children increased coverage by 14 percentage points, and men increased coverage by 10 percentage

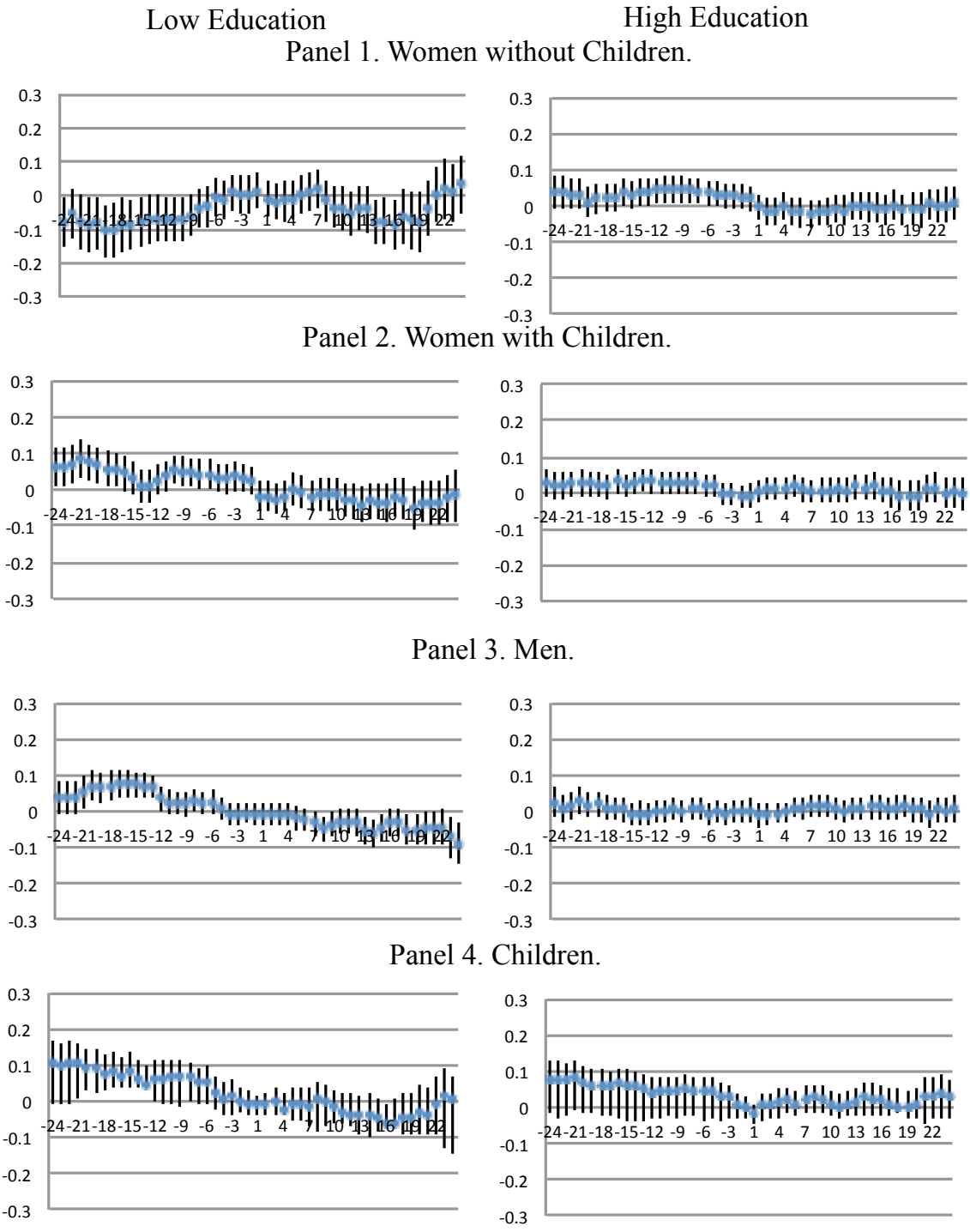

FIGURE 2.4: Any Coverage Regression Coefficients by Education

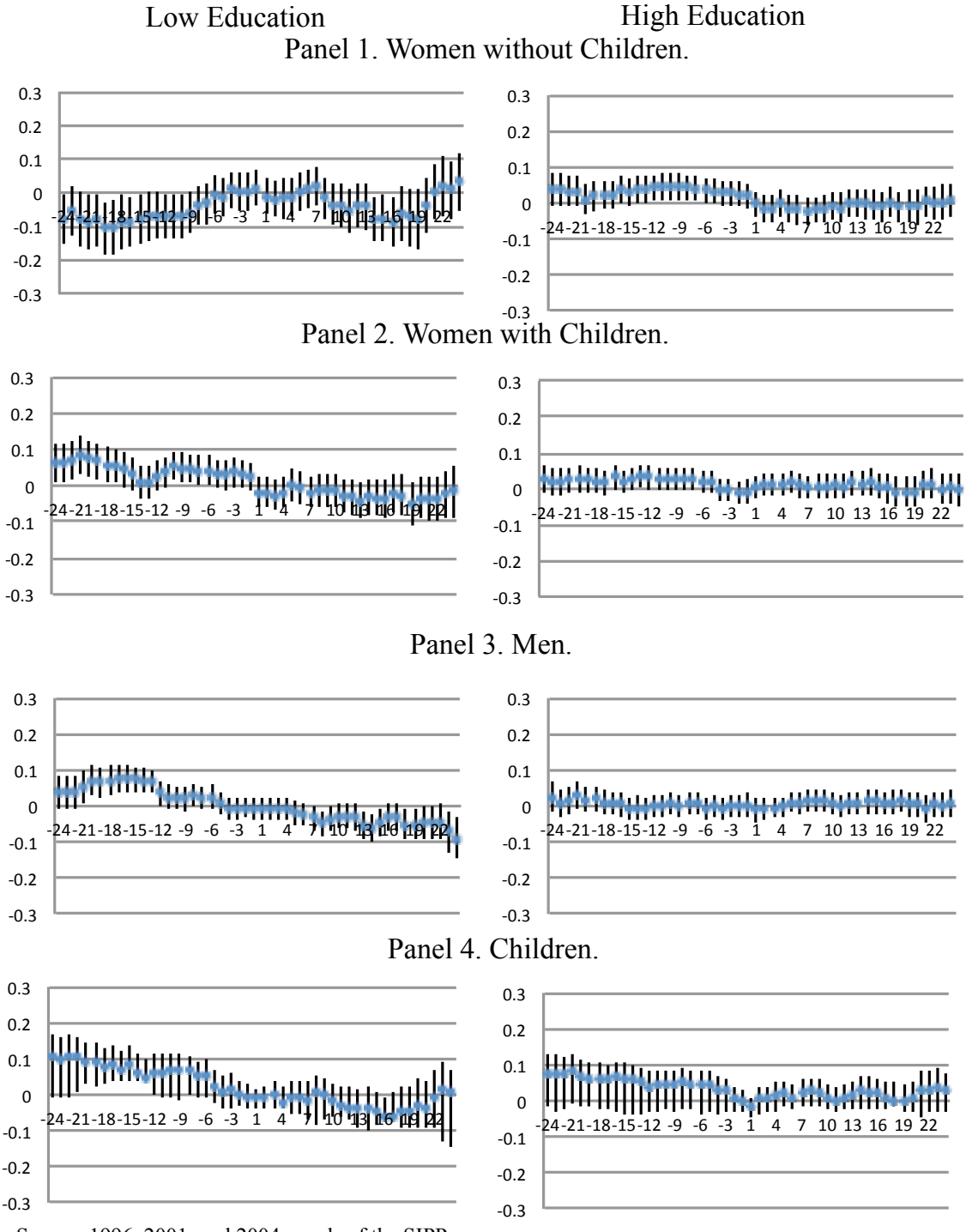

FIGURE 2.5: Private Own Name Coverage Regression Coefficients by Education

points going from x to x. The increases in private own name coverage for higher education groups only are likely due to better labor market opportunities they face. Those with higher education are more likely to have access to employer coverage either in their current jobs or in new jobs that they may be able to obtain during the process of a marital disruption.

Turning to separate sources of coverage Figure 2.6, shows very large and significant declines in private dependent coverage for women with children, men, and children in the lower education group and for all populations in the higher education group. For example, all else equal, women with children in the lower education group see their coverage decline by 27 percentage points while dependent coverage for children declines by 21 percentage points. In the 3rd panel, low educated men experience larger declines in dependent coverage than higher educated men. This is likely because men with higher educational attainment are more likely to be married to women who have jobs with health insurance due to assortative mating. Children with lower educated mothers have larger declines in dependent coverage because former spouses may refuse to continue covering children given the high premiums often required of workers for dependent coverage plans. Another reason for this difference is that higher educated families undergoing marital disruption are more likely to be divorced than separated, and divorce involves a more formal process of addressing children's health insurance in child support agreements.

Changes in public coverage are presented in Figure 2.7. These graphs show increases in public coverage for lower educated women with children and children whose parents have lower education. All else equal, from a year before to a year after the marital disruption, we see increases in public coverage of 17 percentage points for women with children and 9 percentage points for children in the lower education group. We do not observe corresponding significant increases for women without

children, men, or higher education groups. This is not surprising, since lower education women with children and children with lower education parents are most likely to be eligible for public coverage.

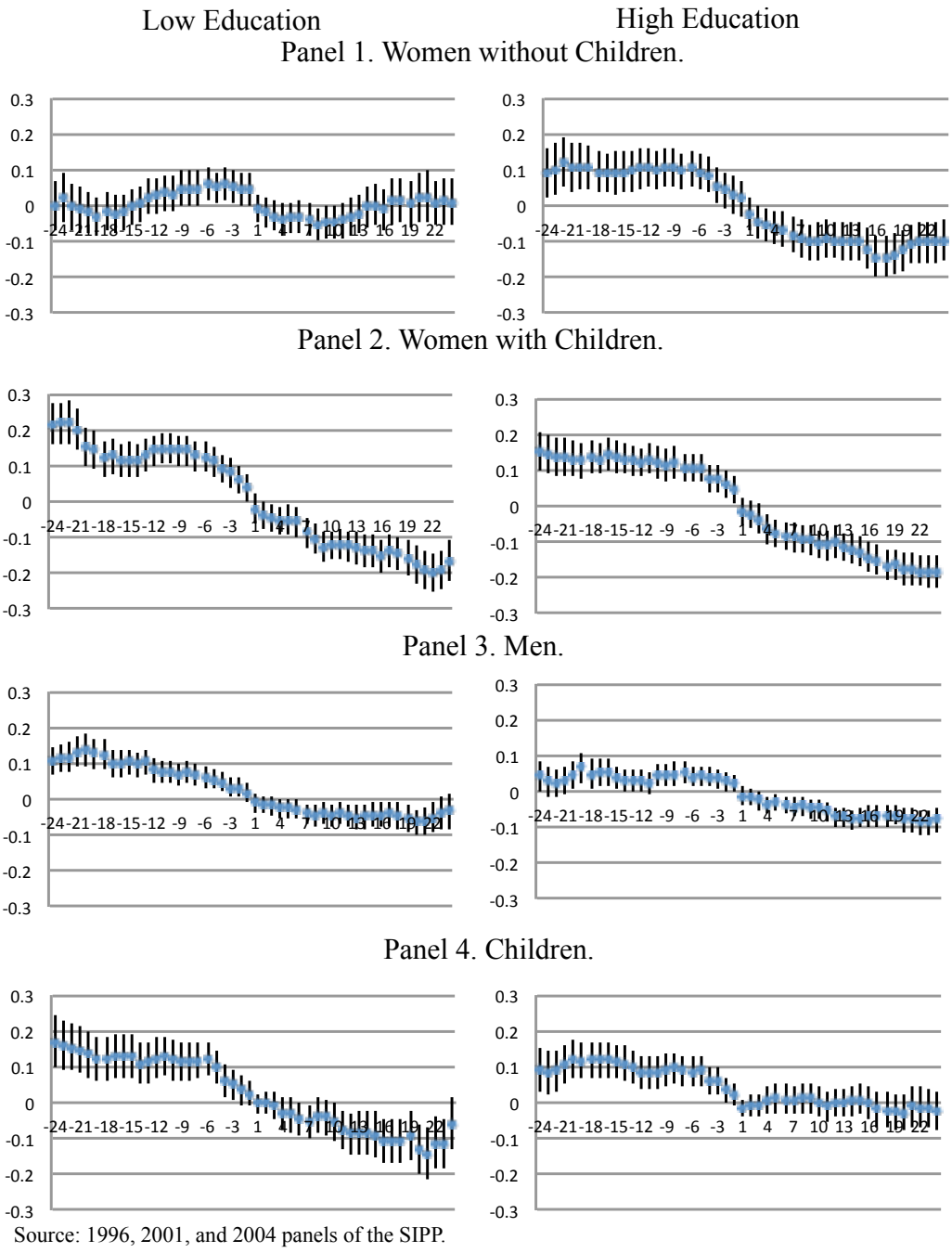

FIGURE 2.6: Private Dependent Coverage Regression Coefficients by Education

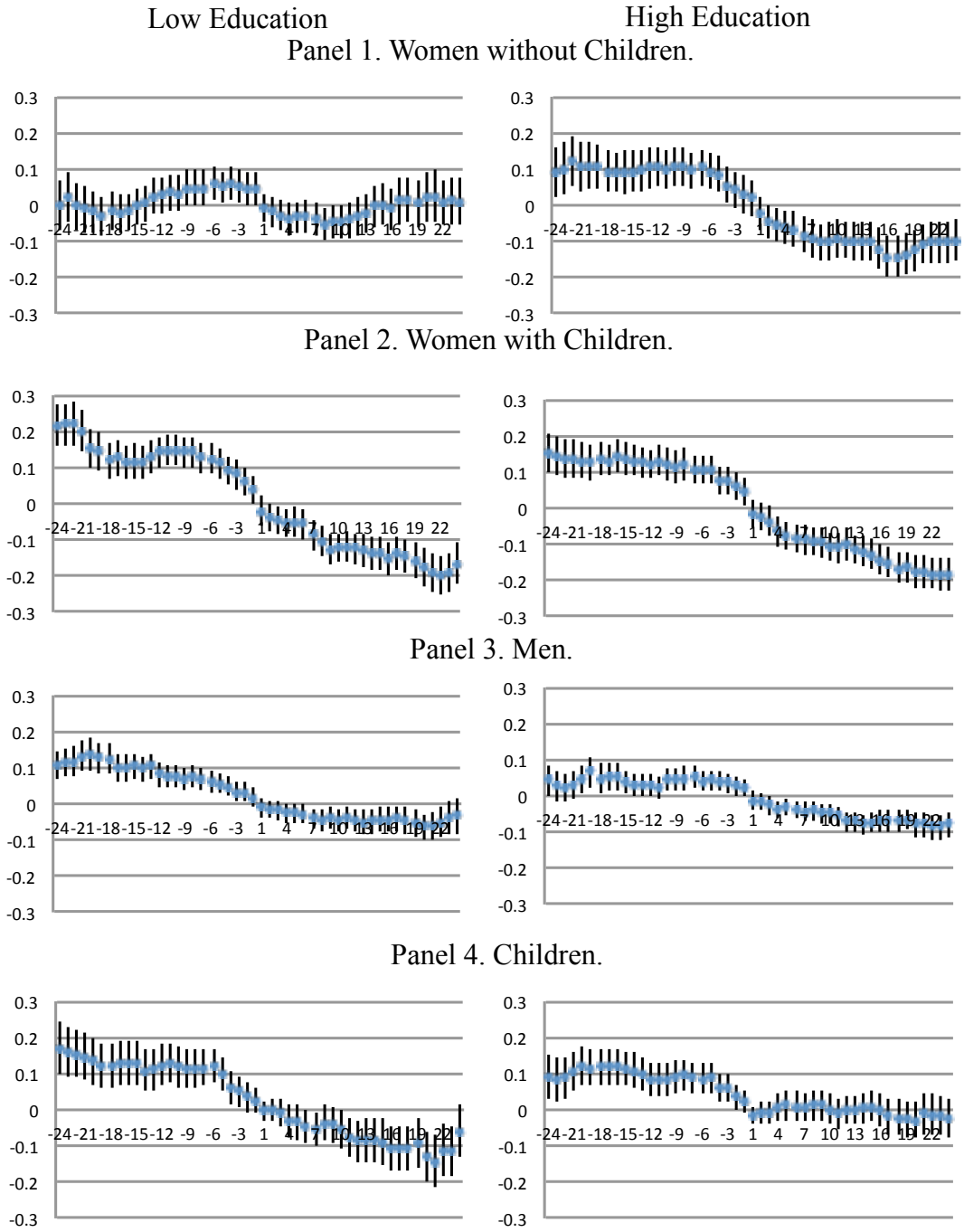

FIGURE 2.7: Public Coverage Regression Coefficients by Education

Investigating Long Run Patterns

Although initially one might assume that health insurance changes right around and after the time of marital dissolution, both our longitudinal and multivariate results indicate that changes in coverage begin substantially before the date of marital dissolution. This could result from imprecision in measurement of the date of dissolution or from other ongoing employment or health trends correlated with marital dissolution. As discussed earlier, there is a relatively tight correspondence between the date of reported marital disruption and when a couple ceases living at the same address, so it is unlikely that declines in coverage preceding the disruption are due to imprecisions in measuring the date of marital dissolution.

A second and more plausible explanation for the finding that the coverage declines begin several months prior to dissolution date could be the possibility that a third factor such as an employment status change resulting in the loss of health insurance precedes the marital status change as discussed above. If this were the case, we could be incorrectly attributing to marital dissolution the changes in health insurance arising from a job loss, which also triggered a marital change. Alternatively, a change in mental or physical health status could lead to both marital dissolution and job loss. These are possibilities that we are unable to explore further given data limitations, thus remain possible reasons for the pattern of results we observe.

VII. DISCUSSION AND CONCLUSIONS

Despite the ubiquitous nature of marital disruption in modern society and the high level of policy attention paid to consequences of uninsurance, there is surprisingly little research on the consequences of marital disruption for health insurance coverage of men, women and children. We address this shortfall by examining both descriptively and through regression analysis the patterns of health

insurance coverage surrounding marital disruption for for subpopulations (men, women with children, women without children, and children), further subset by education level.

Our conceptual model provides a framework for understanding how health insurance is impacted by marital dissolution through access to dependent coverage through the spouse, labor market participation, health status, public policies, and other factors. While there is no way to empirically identify the causal impact of an exogenous marital dissolution on health insurance coverage, we are able to control for some of the confounding factors and gain insight into the key relationships.

We began our investigation by presenting cross sectional differences in health insurance status by marital status, showing large gaps in uninsurance rates and specific forms of insurance. However, when we examined the same individuals longitudinally, it becomes clear that the gaps visible in the cross sectional descriptive figures are primarily due to unobserved differences between individuals rather than effects of the marital disruption per se.

However, the smaller differences in presence of coverage mask larger shifts in type of coverage. When we subset the data by education and use regression techniques to control for time-varying economic and policy variables, we found that results differed between education groups. The method of analysis we follow in studying the impact of marital disruption is similar to techniques used in the past to study the impact of job loss and of divorce on earnings (Couch and Placzek 2010; Couch et al 2011; Jacobson, LaLonde and Sullivan 1993). In general these results are consistent with a world where access to 'good jobs' is easier for those with higher education. Jobs available to higher skilled individuals generally tend to offer better wages and better fringe benefits. In lower skilled jobs there may a substantial wage penalty in jobs that provide health insurance, and consistent with lower resource availability after marital disruption, health insurance is less likely a priority for these families as they readjust. However, public insurance makes up for a lot of the shortfall in the case of children so that

children of lower or higher educated families appear to fare about the same when measuring presence of coverage. The results are also consistent with increased independence after marital disruption and a partial compensation for lost marital resources. For example we observe greater reliance on own name coverage, even though the declines in dependent coverage are not fully compensated through this avenue. These results are consistent with findings in administrative data that show increases in own earnings as a result of divorce (Couch et al 2011).

We caution that the patterns we observe before and after marital dissolution are not interpreted as causal because we are not able to rule out other factors that may have caused marital disruption and may also be affecting health insurance independently. There are two types of confounding mechanisms that could cause challenges for our analysis: initial conditions and changes. First, there is reason to think that initial conditions in employment and health may matter for how likely individuals are to divorce and their experiences after divorce. For example, our results may be biased if poor health causes a person to be more likely to experience marital change and more likely to maintain health insurance due to the increased demand for it. In this case, we may incorrectly conclude that marital change did not lead to a loss of health insurance. Alternatively, certain personality characteristics (perhaps a high discount rate or a lack or trustworthiness among other possibilities) could increase the probability of both marital dissolution and job loss leading to loss of employer provided coverage. Although these factors may play an important role in explaining the cross sectional results, individual fixed effects in the longitudinal and multivariate analyses should adequately control for these factors, which do not vary over time.

However, the larger concern is regarding the biases introduced by changes in health and employment as well as other variables. For example, those who lose a job for some exogenous reason may be more likely to experience a marital dissolution as well as loss of health insurance. If we do not account for the job change event, then we would incorrectly attribute the health insurance loss to the

divorce. Alternatively a health problem could increase the probability of both job loss and marital disruption. We have very limited information on some of these factors, such as health status. While we can control for some of these changes such as job loss, controlling for these factor could only eliminate biases if they are exogenous. However, it is possible that employment and health status change are caused by a third factor that is also associated with divorce or is jointly determined with marital status change (Mincy et al, 2009).

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APPENDIX

APPENDIX TABLE 2.1: Variable Means at Baseline by Whether Spouse is in Data One Month After Marital Disruption, Age 23-64

	Women			Men		
	No Husband		Husband in Data	No Wife		Wife in Data
Frequency	823		947	426		964
No College Education	0.49	**	0.40	0.51	*	0.44
Baseline Coverage						
Private Own	0.36	*	0.42	0.61		0.60
Private Dependent	0.31	**	0.41	0.11	**	0.21
Public	0.12	**	0.05	0.05		0.04
Uninsured	0.21	**	0.12	0.24	**	0.15
Federal Poverty Level						
<100%	0.20	**	0.08	0.16	**	0.10
100-150%	0.10		0.09	0.09		0.09
150-200%	0.11		0.09	0.11		0.10
200-300%	0.21		0.20	0.19		0.21
>300%	0.38	**	0.53	0.44	*	0.51
Any Children	0.43		0.43	0.22	**	0.42
Mean Number of Children for those with Children	2.04		1.95	1.90		1.91

All observations are from one month after the marital disruption. Significance tests test the difference between women with and without and husband remaining in the data and between a man with and without his wife remaining in the data.
Source: 1996, 2001, 2004 SIPP

APPENDIX TABLE 2.2: Insurance Coverage for Women with Children, High School Education or Less

	Any Coverage		Private Own Name Coverage		Private Dependent Coverage		Public Coverage	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Unemployment Rate	0.019	(0.007)	-0.019	(0.007)	0.003	(0.007)	0.035	(0.006)
EITC	0.191	(0.027)	0.029	(0.027)	0.086	(0.026)	0.079	(0.021)
waiver	-0.011	(0.015)	0.035	(0.016)	-0.067	(0.015)	0.022	(0.010)
tanf	-0.016	(0.017)	-0.012	(0.017)	0.003	(0.016)	-0.007	(0.010)
24 Months Before	0.061	(0.027)	-0.058	(0.028)	0.217	(0.030)	-0.100	(0.021)
23 Months Before	0.062	(0.027)	-0.052	(0.027)	0.218	(0.029)	-0.105	(0.020)
22 Months Before	0.069	(0.027)	-0.043	(0.027)	0.221	(0.029)	-0.110	(0.019)
21 Months Before	0.088	(0.027)	-0.020	(0.026)	0.201	(0.029)	-0.095	(0.018)
20 Months Before	0.075	(0.026)	0.011	(0.026)	0.156	(0.027)	-0.093	(0.017)
19 Months Before	0.068	(0.026)	0.006	(0.026)	0.143	(0.027)	-0.083	(0.017)
18 Months Before	0.058	(0.025)	0.022	(0.025)	0.119	(0.025)	-0.084	(0.016)
17 Months Before	0.055	(0.024)	0.008	(0.025)	0.128	(0.025)	-0.081	(0.016)
16 Months Before	0.044	(0.024)	0.015	(0.023)	0.115	(0.025)	-0.086	(0.016)
15 Months Before	0.034	(0.023)	0.009	(0.023)	0.118	(0.024)	-0.093	(0.016)
14 Months Before	0.011	(0.024)	-0.017	(0.023)	0.118	(0.023)	-0.090	(0.015)
13 Months Before	0.010	(0.024)	-0.029	(0.023)	0.132	(0.023)	-0.094	(0.015)
12 Months Before	0.028	(0.022)	-0.030	(0.022)	0.144	(0.022)	-0.088	(0.015)
11 Months Before	0.038	(0.022)	-0.031	(0.021)	0.148	(0.021)	-0.081	(0.014)
10 Months Before	0.056	(0.020)	-0.022	(0.021)	0.148	(0.021)	-0.072	(0.015)
9 Months Before	0.051	(0.020)	-0.029	(0.019)	0.142	(0.021)	-0.064	(0.015)
8 Months Before	0.049	(0.020)	-0.038	(0.019)	0.142	(0.021)	-0.056	(0.015)
7 Months Before	0.043	(0.020)	-0.033	(0.019)	0.127	(0.021)	-0.053	(0.014)
6 Months Before	0.043	(0.020)	-0.033	(0.018)	0.125	(0.021)	-0.050	(0.014)
5 Months Before	0.033	(0.020)	-0.036	(0.018)	0.111	(0.021)	-0.044	(0.014)
4 Months Before	0.029	(0.020)	-0.031	(0.017)	0.091	(0.021)	-0.031	(0.014)
3 Months Before	0.037	(0.020)	-0.019	(0.018)	0.082	(0.021)	-0.027	(0.015)
2 Months Before	0.031	(0.020)	-0.006	(0.018)	0.061	(0.021)	-0.024	(0.014)
1 Month Before	0.026	(0.020)	0.003	(0.018)	0.037	(0.021)	-0.015	(0.014)
1 Month After	-0.019	(0.021)	-0.004	(0.018)	-0.020	(0.021)	0.005	(0.014)
2 Months After	-0.019	(0.021)	0.010	(0.018)	-0.038	(0.021)	0.009	(0.015)
3 Months After	-0.025	(0.022)	0.015	(0.019)	-0.046	(0.021)	0.006	(0.017)
4 Months After	-0.017	(0.023)	0.018	(0.020)	-0.053	(0.021)	0.016	(0.018)
5 Months After	-0.001	(0.023)	0.023	(0.020)	-0.051	(0.021)	0.027	(0.018)
6 Months After	-0.006	(0.024)	0.012	(0.021)	-0.057	(0.021)	0.037	(0.019)
7 Months After	-0.018	(0.022)	0.020	(0.021)	-0.085	(0.022)	0.047	(0.015)
8 Months After	-0.011	(0.023)	0.023	(0.022)	-0.105	(0.021)	0.069	(0.016)
9 Months After	-0.016	(0.023)	0.033	(0.022)	-0.127	(0.021)	0.076	(0.017)
10 Months After	-0.013	(0.023)	0.019	(0.022)	-0.122	(0.021)	0.088	(0.018)

APPENDIX TABLE 2.2 (Continued)

11 Months After	-0.030	(0.023)	0.012	(0.022)	-0.121	(0.021)	0.076	(0.018)
12 Months After	-0.030	(0.024)	0.010	(0.023)	-0.125	(0.023)	0.084	(0.019)
13 Months After	-0.041	(0.025)	-0.001	(0.023)	-0.129	(0.023)	0.089	(0.019)
14 Months After	-0.031	(0.025)	0.003	(0.024)	-0.138	(0.023)	0.104	(0.019)
15 Months After	-0.035	(0.025)	0.014	(0.023)	-0.140	(0.023)	0.092	(0.020)
16 Months After	-0.037	(0.027)	0.031	(0.024)	-0.150	(0.023)	0.082	(0.022)
17 Months After	-0.022	(0.028)	0.026	(0.025)	-0.134	(0.024)	0.086	(0.022)
18 Months After	-0.027	(0.028)	0.024	(0.026)	-0.146	(0.024)	0.095	(0.022)
19 Months After	-0.051	(0.030)	0.016	(0.027)	-0.159	(0.025)	0.093	(0.023)
20 Months After	-0.032	(0.029)	0.034	(0.027)	-0.174	(0.026)	0.107	(0.022)
21 Months After	-0.036	(0.030)	0.040	(0.028)	-0.188	(0.027)	0.111	(0.024)
22 Months After	-0.034	(0.030)	0.045	(0.028)	-0.199	(0.027)	0.119	(0.026)
23 Months After	-0.022	(0.033)	0.056	(0.028)	-0.193	(0.028)	0.115	(0.027)
24 Months After	-0.016	(0.036)	0.028	(0.031)	-0.166	(0.029)	0.120	(0.031)
48-25 Months Before	0.052	(0.021)	-0.030	(0.021)	0.223	(0.022)	-0.141	(0.016)
25-48 Months After	0.014	(0.024)	0.017	(0.022)	-0.122	(0.023)	0.118	(0.018)

Note: Dummy variables for panel and year as well as the constant term have been omitted from the table. The sample is women age 23-64 with children with a high school educaiton or less who were married in month 1 of the survey and subsequently divorced or separated.

Source: 1996, 2001 and 2004 panels of the SIPP

APPENDIX TABLE 2.3: Variable Means by Group, Regression Sample

Variable	Women without Children		Women with Children		Men		Children	
	Low Edu.	High Edu.	Low Edu.	High Edu.	Low Edu.	High Edu.	Low Edu.	High Edu.
Race								
White	0.65	0.03	0.04	0.04	0.03	0.03	0.05	0.03
Black	0.13	0.82	0.69	0.76	0.73	0.83	0.61	0.75
Hispanic	0.18	0.10	0.11	0.11	0.09	0.08	0.12	0.13
Other	0.04	0.04	0.15	0.09	0.15	0.06	0.22	0.09
Age	43.75	41.31	34.76	36.14	39.08	39.83	8.52	8.95
Health Insurance								
Private, Own Name	0.36	0.57	0.27	0.43	0.54	0.69	NA	NA
Private, Dependent	0.24	0.31	0.41	0.41	0.16	0.18	0.60	0.80
Public	0.14	0.02	0.13	0.05	0.07	0.02	0.22	0.12
Uninsured	0.27	0.10	0.20	0.11	0.23	0.11	0.18	0.07
Unemployment Rate	5.14	5.21	5.24	5.17	5.03	5.17	5.22	5.15
EITC	0.00	0.00	0.39	0.39	0.23	0.22	0.38	0.39
Waiver	0.20	0.18	0.22	0.16	0.19	0.16	0.21	0.17
TANF	0.60	0.65	0.59	0.68	0.60	0.64	0.61	0.69
Medicaid Eligibility Measure	NA	NA	NA	NA	NA	NA	0.42	0.45
N	250	307	531	624	650	721	644	695

Note:The sample is adults age 23-64 and children age 0-18 who were married (or whose parents were married) in month 1 of the survey and subsequently divorced or separated (or whose parents divorced or separated). All means are from the first month of the survey.

CHAPTER 3

PUBLIC HEALTH INSURANCE EXPANSIONS FOR CHILDREN, SUBSTITUTIONS OF PRIVATE COVERAGE AND PARENTAL LABOR MARKET OUTCOMES[18]

Jamie Rubenstein Taber[19]

ABSTRACT

Public health insurance expansions for children provide an alternative to employment-related coverage for some working families. While many studies investigate the magnitude by which public insurance expansions 'crowdout' private coverage, we ask a question relatively new to the literature. Are such families able to recoup the benefits of no longer relying on employer provided coverage for children when they move to public coverage? We study how parental labor market outcomes are affected by children's movements from employer coverage to public coverage that are spurred by public health insurance expansions for children. We argue that that it is not clear what magnitude of an effect we should expect; the nature of income based eligibility may make improvements in labor market outcomes hard to detect along any single dimension, but we should be able to see increased turnover as a result of crowd-out. Isolating the impact of substitution of coverage (as opposed to the effect of general eligibility for public coverage) poses several estimation challenges. We pursue a differences (treatment-control) method as well as an instrumental variable strategy which each have their pros and cons. Our preliminary findings from the Survey of Income and Program Participation (SIPP) and the Current Population Survey (CPS) do not show much noticeable improvements in family labor market outcomes.

[18] This paper is based on "Public Health Insurance Expansions for Children, Substitution of Private Coverage and Parental Labor Market Outcomes" by Kosali Simon and Jamie Rubenstein presented at the AcademyHealth Health Economics Interest Group in Chicago, IL on June 27th 2009.

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I. INTRODUCTION

As the Patient Protection and Affordable Care Act (PPACA) expands Medicaid coverage to up to 138% of the federal poverty level, up to an additional 15 million adults will become eligible for public coverage if all states participate in the expansion (Kenney et a 2012). It is likely some individuals who take-up public coverage would have been privately insured in the absence of the Medicaid expansions. In this paper, we examine expansions in public coverage for children, though impacts of public coverage for children are likely to apply to adult expansions. Politically, substitution of coverage is seen as an undesirable outcome because it does not reduce the number of children who are uninsured, which stands at about 9 million (KFF, 2007a), yet adds to the taxpayer's bill. But from a theoretical perspective, substitution of coverage may confer as equally desirable benefits for poor families as new coverage. Consider two equally skilled families who are covered by public coverage through an expansion in public health insurance policy. Suppose one family was formerly uninsured and received its entire compensation package in the form of wages, while the other family used to receive employer sponsored health insurance as well as wages, thus received a lower wage. [20] After the expansion, we could see wages of the formerly privately insured family increase to the same level as the other family as new employment is found in a firm that pays higher wages but does not provide health insurance. Thus, the policy could provide substantial benefit to both families[21] and maintain horizontal equity, yet reduce uninsurance only in the case of one family.

[20] The average national annual premium for family coverage when bought as part of a multiple policy package by an employer is $12,106 in 2007, while for single coverage is it $4,479 (KFF, 2007b). According to the US Census Bureau, median annual household income in 2007 was about four times the value of the cost of a family plan, at about $50,000.(http://www.census.gov/prod/2008pubs/p60-235.pdf) (For now we are relying on published estimates thus we are not limiting these to households that receive employer family insurance policies). Thus, 15-25% would be an upper bound estimate of the value of health insurance as a share of household income.

[21] The taxpayer cost can be approximated by the payments to medical providers. In 2004, the average state incurred (total of federal and state spending) $1694 per child and $2,846.74 per non-elderly adult. (Note that these do not include costs such as DSH payments to hospitals.) Source: Author calculations from HCFA 2082 and MSIS data.

The scenario above assumes that the entire amount by which the employer's fringe benefit costs are reduced by public insurance expansions will be recouped by the worker in the form of higher wages. In reality, there are many other possibilities for the incidence of the benefit. The employer could profit by not passing on the cost savings to the employee, or co-workers at the firm may profit from this because there could be only group level incidence of compensating wage differentials. If these alternatives occur, then the substitution of coverage is less socially desirable because the benefits are no longer targeted at the intended population.

Another assumption behind the scenario presented is that once a family becomes covered by Medicaid at the expense of employer insurance, future increases in family income (from the compensating differential) will not cause them to lose eligibility for Medicaid. Since substitution of coverage is most likely for families whose incomes are close to the upper end of the eligibility limit to begin with, receiving even a small increase in earnings may make the family ineligible. Thus, a family that has substituted public for private coverage is unlikely to desire receiving the entire amount of employer costs that have been avoided back in wages, even if they were able to do so, as that may cause them to lose eligibility for those benefits. The family may instead pursue opportunities that were earlier unavailable to them (self-employment, smaller-firm employment, part time work). This would make it empirically harder to detect improvements for the family.

Another relevant issue is whether the mechanism of crowdout involves the family substituting out of private insurance for the whole family or just for the children. The research on parental Medicaid expansions find that there is a smaller degree of crowdout for parents from expansions targeted at adults (Aizer and Grogger 2003, Busch and Duchovny 2005; e.g . Busch and Duchovny find crowdout on the order of 24% off a 15% take-up rate). If parents are less likely to switch out of private coverage when

they themselves become eligible for public coverage, this suggests they would be even less likely to drop private coverage for themselves when only their children become eligible. Buchmueller et al (2008) find that employers appear to respond to recent eligibility expansions by making coverage for dependents less generous rather than by dropping coverage outright. Thus, the room for family level improvements as a result of crowdout would be small, as replacing family level employer coverage with single adult employer coverage (or coverage for two parents and no children) is less likely to result in reduced job-lock or substantial compensating differentials). [22]

There are two related concepts in labor and health insurance to which the question we study relates. One is the compensating wage differential for health insurance (no longer receiving employer subsidized health insurance should lead to higher wage compensation). The other is job lock. If the reason a person stayed with a bad match is that it provided health insurance, and s/he earlier couldn't find a preferred job that had health insurance, or compensated enough for the loss of health insurance, s/he should be able to change jobs more often after State Children's Health Insurance Program (SCHIP) expansions.[23]

We first consider the implications of crowdout for labor earnings via compensating wage differentials. Those who drop private insurance for children and move them to public insurance for which they have become newly eligible may experience wage increases. The magnitude we expect depends on a) whether the family forgoes employer health insurance entirely or else moves to single coverage for the parents instead of family coverage. If the families switch from family to single

[22] Traditionally, employers offered two forms of coverage only-single policy vs family policy. Typically, employers pay about 90% of a single policy and 75% of a family policy. In the case of two workers, adults may be better off accepting single policies from each one's own employer and receiving coverage for children through SCHIP as the total premium for single coverage is about 2.5 times cheaper than for family coverage. (KFF, 2007b)

[23] It is noteworthy that when we discuss job lock in general, there is no worry that earnings growth should be restrained like there is here. An increase in earnings (presumably a benefit of being freed from job lock due to an alternative source of health insurance) if too large, would lead to a loss of eligibility, so we might not see as much mobility as otherwise.

coverage, we'd expect much less of a compensating differential than if coverage was dropped for the whole family.[24] b) The magnitude will also depend on whether the family would hit the eligibility threshold by receiving extra cash wages. To the extent this is relevant, we'd expect to see more in other adjustments than wages. c) The magnitude depends on how much wage compensation is received in return for dropping health insurance. If the market for low skilled labor is competitive, there should be other jobs that provide no health insurance but pay substantially more.

Those who no longer demand health insurance for their children (or for the whole family) also should no longer feel locked into their current job for heath insurance reasons. This is related to compensating differentials because movement out of the current job may be the only way to realize the wage gains from dropping health insurance. But we may expect greater job movement above and beyond what is necessary to increase wages; individuals may move to improve other work dimensions which are harder to define (e.g. a move to a small firm may or may not be seen as a job improvement, working day instead of night shift, working part time instead of full time).[25] That is, in return for relying on public coverage instead of private coverage, the labor market may reward the worker with a higher quality job (where wage is one of many dimensions of quality), which would be gained through job movements.

The aim of our paper is to test the hypothesis that parental wages or other labor market outcomes will improve when a family no longer requires children's health insurance as part of the compensation package by studying the period of SCHIP implementation using data from the Survey of Income and

[24] The marginal cost of covering children on a policy is likely to be relatively low. In 2006, an employee plus one plan cost on average $7988 a year in total premium compared to $11,381 for a family plan and $4118 for a single plan.

[25] Thus, workers may in theory not move jobs but rather remain at the same job and see their wages increase, as they no longer rely on employer health insurance. However, in practice it is unlikely that workers will be able to recoup the compensating wage differential by remaining at the same job. One such reason is the high transaction and legal costs of tailoring individual fringe benefit packages (Internal Revenue Service regulations impose restrictions on an employer's ability to vary provision of fringe benefits among workers, in order to maintain the tax-preferred status of employer contributions to those fringe benefits). It may only be through job or employer moves that workers will see wages improve.

Program Participation (SIPP) and the Current Population Survey Annual Demographic Supplements (CPS ADS). It is clear from the discussion above that the nature and expected magnitude of improved labor outcomes for the family depend on a number of unknown factors (e.g. do parents drop employer coverage altogether when children become eligible for public insurance), thus we turn to two possible ways of empirically estimating this effect.

One possible approach to studying this question is to examine a model as follows:

(1) $Labor_{it}=\beta_{0+}\beta_1 Private_{it}+\beta_2[X]_{it}+e_{it}$

where $Labor_{it}$ is the family labor market outcome in question (such as wages or job turnover) for a child i's family in time t, and $Private_{it}$ is a dummy variable for the child's private insurance coverage. We wish to know how dropping private coverage affects the family's outcomes. However, insurance status is highly endogenous to family labor outcomes, and we require an instrument to understand how reductions in private coverage due to public health insurance policy alone would affect family outcomes. A potential instrument is the simulated measure of eligibility used to instrument for individual eligibility in the Medicaid/SCHIP health insurance literature. This measure of policy is likely to have an effect on private coverage (since that is the way that substitution of public coverage for private coverage is identified in the first place). However, this instrument is not likely to be suitable for studying labor market outcomes in this context because it may affect the dependent variable in ways other than just its effect on private insurance reductions. Specifically, Medicaid expansions have been shown to increase earnings of those already on Medicaid because it allows them to now earn more while still maintaining eligibility. Yelowitz (1995) found that women's labor force participation increased in response to the initial Medicaid expansions of the late 80s and early 1990s.

Rather than using variation in policy as an instrument, the Medicaid/SCHIP literature has also used variation in policy through a "differences" approach; the basic intuition is similar in that we compare groups with greater (full) versus smaller (none) changes in eligibility. However, the problem of identification above is unlikely to pose a problem in this setting. In a differences model, we would look at changes before and after policy for a treatment group (based on age/income/state) who are the target of the expansion. Those who are not the target of policy (always eligible or never eligible) would constitute the control group. We expect to see improvements in outcomes for the newly eligible cohorts, e.g. they are likely to be able to move jobs more than before if they no longer are job-locked. But we expect to see this improvement effect only among those newly eligible who display substitution of coverage. A problem with this differences method is that it would not isolate the impact that would occur only through the substitution of coverage; we would be picking up the impact on all people who are made eligible. As a starting point, we estimate this model with our data, recognizing the limitation in what we can conclude, we also turn another method to isolate the impact we seek to estimate.

Our second empirical approach is to use longitudinal data to study only the direct substitution of coverage--from those children on private coverage who switch directly to public coverage. This will fail to capture substitution that occurs because of lack of movement from uninsurance or public coverage to private insurance that would have occurred absent policy expansions. Of all individuals who switch from private to public coverage, only a portion is potentially due to policy, but this is not a problem as we should be able to isolate this using an IV (measure of the increase in Medicaid generosity). The drawback to this method, as mentioned, is that we do not capture the indirect sources of substitution of coverage so the results will not apply to all forms of 'crowdout'. During the time period of SCHIP/Medicaid expansions, the trend in children's insurance was an increase in private coverage (Figure 3.1), thus crowdout could have happened more through stemming the tide of increases in private

insurance rather than a direct move from private to public coverage. However, by studying individuals who were on private coverage to begin with, we are able to use Medicaid policy measure as an instrument for the insurance status change.

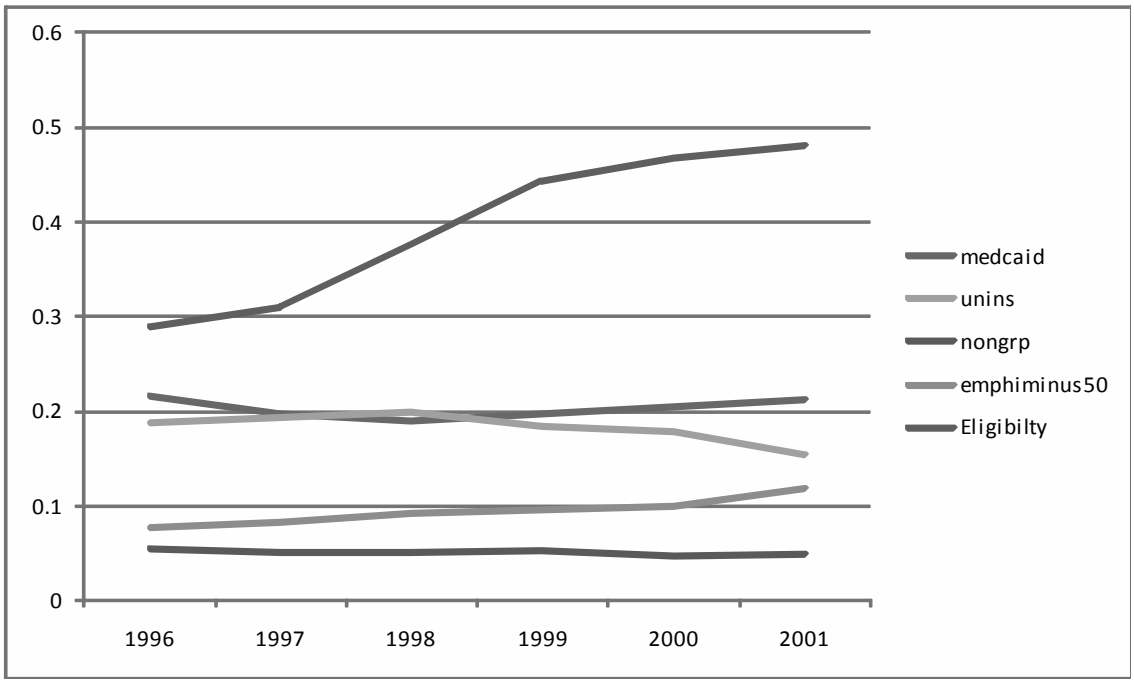

FIGURE 3.1: Trends in Children's Insurance Status and Eligibility Rules
Notes: "medcaid" refers to the percent of children in the March CPS who are on Medicaid during that year (so 1996 refers to data reported in March CPS of 1997)
Fractions may exceed 1 when added because children could have experienced more than one insurance status during the past year
"Unins" refers to the fraction of children who were not covered by any insurance type during the past year
"nongrp" refers to the fraction that report coverage from a non group policy
"emphiminus50" refers to the fraction who are on an employer policy, minus .5 to be able to compare with the other insurance types
"Eligibility" refers to the % of children deemed eligibile by the simulated measure at the state by age by year level, once averaged by year

The remainder of the paper is organized as follows: In Section II we review the literature explaining and supporting the mechanisms that may lead to improvements in family labor market outcomes due to a substitution of public for private coverage. In Section III we describe our method of

identification and our data set. Section IV presents a descriptive analysis of changes in health insurance coverage over time within families and labor market outcomes, and Section V reports results of specifications that use IVs to isolate and quantify the effects of substitution of coverage on labor market outcomes as well as the difference-in-differences analysis. Section VI concludes.

II. LITERATURE REVIEW

The effect of public health insurance expansions on private coverage

"Crowd out" of private health insurance, as first pointed out by Cutler and Gruber (1996), occurs when individuals take-up public health insurance coverage for which they are newly eligible by foregoing private coverage that they received or could potentially have received absent the public insurance expansion. Since public insurance is both more affordable[26] and possibly higher quality than most insurance purchased by poor or near-poor individuals,[27] as long as stigma costs and other hurdles remain relatively low, those who become eligible for public coverage would choose to forgo private coverage. In the past decade, a large number of studies have debated the magnitude of crowd out.

In the initial study of this substitution phenomenon, Cutler and Gruber (1996) found that about 50% of the increase in public coverage was due to crowd out. Research by Dubay and Kenney (1996, 1997) found lower figures for those below 133% of the poverty line, though crowd out among pregnant women between 133-185% of the poverty line was estimated to be 56%. Studies in later years tended to find lower estimates of crowd out. For example Thorpe and Florence (1998) found a rate of 16% and

[26] Medicaid for children and pregnant women usually entails no cost sharing, and Medicaid for non-pregnant adults and SCHIP for children allow very nominal cost sharing, never to exceed 5% of family income—the actual cost sharing imposed by states under SCHIP used is much lower than this. Private insurance usually entails more substantial cost sharing, even ignoring the co-premium required of employees.

[27] On one hand, recent research shows that children who receive Medicaid or SCHIP have better 'quality' medical care as measured by receipt of well child type advice conditional on health status (Perry and Kenny, forthcoming). But other research shows that Medicaid fees paid to physicians (which are usually much lower than private sector fees) discourage physicians from accepting Medicaid patients (Cohen and Cunningham, 1995).

Blumberg, Dubay and Norton (2000) found a rate of only 4%. There are two studies of expansions in public coverage that were aimed at low-income parents. Aizer and Grogger (2003) and Busch and Duchovny (2005) both find moderate take-up but relatively lower levels of crowdout.

Studies which focus on crowd out among State Children's Health Insurance (SCHIP) enrollees generally find higher numbers than those focusing on Medicaid, since parents with incomes above the poverty level are more likely to have the option to enroll in private health insurance. According to the Congressional Budget Office's 2007 review of the literature, estimates of crowd out range from 25-50%; some more recent papers fall outside the range with 7-14% for individual level eligibility (Sommers et al, 2007) to 61-68% for the effect family-based eligibility on children's coverage (Gruber and Simon, 2008) with other studies ranging between these two extremes. Differences depend on the dataset used, the methodology chosen, the population studied, and the definition of crowd out employed.[28]

Despite these differences, there is consensus that substitution of coverage does exist, a sufficient condition for asking the next question: are there visible labor market benefits for the families whose children move from private to public coverage? Families that no longer rely on employer health insurance for their children should see improvement in labor market outcomes through mechanisms that have been studied in the past, e.g., in the context of job-lock. We now turn to a review of these related literatures.

Is there evidence of job-lock due to employer provided health insurance coverage?

[28] In this paper, as in the literature reviewed here, we focus on public health insurance expansions for children. There are two reasons for this. First, the SCHIP expansions provide variation in eligibility over time, which we use to instrument for the decision to switch from private to public coverage. Second, children's expansions have been the main focus of study in the literature and are the main focus of policy changes being debated currently. Thus it is important to see whether families benefit from substitution of coverage for children. Parental expansions of Medicaid exist but are much less frequent. However, the case for possible improved labor market outcomes is more compelling if the entire family is made eligible. Recent evidence from SCHIP program evaluations show that of all children on SCHIP coverage in California and North Carolina, about half have parents who receive employer health insurance (Kenney et al 2007, table 3). In future work, we plan to explore the effect of parental Medicaid expansions as well.

Another strand of literature relevant to our study is on health insurance related job-lock. Workers may stay with otherwise inefficient job matches because they receive health insurance from that job and are unable to obtain it elsewhere on the same terms if they leave that job. This occurs if there are rules such as pre-existing conditions exclusions that health insurers apply to new coverage (lack of 'portability') or if not all firms offer health insurance, implying that certain workers (perhaps those with greater medical care needs) receive rents on certain jobs due to their coupling of health insurance and employment. Empirical investigations of this phenomenon have found some evidence in support of this hypothesis although there is not a consensus.

To control for selection in measuring employment change probability due to health insurance status, Madrian (1994) uses a group who would place a low value on health insurance (those with access to spousal employer health insurance as well as own employer health insurance) as a control for the group with a high value for health insurance (those with only own employer health insurance), which we would expect to experience job lock. Madrian finds job lock rates of 31-67% depending on how "value" is measured. By and large, other studies using the DD method have found significant job lock as well. For example Buchmueller and Valletta (1996) find rates of 25-32% for men and 34-49% for women. However, most of these studies use spousal insurance as a proxy for the "value" of insurance, which may be prone to selection problems. Indeed, when Kapur (1998) re-estimated effects on the same data set as Madrian (1994) but using medical conditions instead of spousal insurance, she found insignificant and small results which sometimes have the wrong sign.

Another area of literature relevant to this work is family dynamics in labor market outcomes associated with health insurance changes. These papers are closely related to job lock and establish that changing availability of health insurance within the family affect labor market outcomes of other family members. Rogowski and Karoly (2000) find that those with access to post retirement health insurance

(some of which could be from a family member's continued employment) are between 44% and 68% more likely to retire than others. Buchmueller and Valetta (1999) find that husband's access to employer health insurance exerts a strong negative effect on wives labor supply, especially among families with children.

There are two recent papers that look at whether public health insurance expansions reduce job lock. Bansak and Raphael (2008) study SCHIP expansions and Hamersma and Kim (2010) study parental expansions. Neither paper focuses on isolating effects from the substitution of public coverage for private coverage, which is where we argue the effects are most likely to occur. Bansak and Raphael find evidence that among those whose children become newly eligible, fathers with uninsured wives change jobs more in 1996 period vs 2001 period, but not fathers with insured wives. Hamersma and Kim find that job lock is reduced after adult expansions for unmarried women, but not among married adults.

Is there a wage fringe tradeoff for health insurance? At what level does it occur?

It is clear that fringe benefits are not 'free' to the employee but rather reflect non-wage compensation.[29] However, the wage-fringe tradeoff is difficult to identify in observational data due to omitted factors (for example, it is hard to find the identical work offered with and without fringe benefits as part of the compensation package thus allowing us to show the wage-fringe tradeoff as the difference in the wages of the two jobs). Furthermore, it is also clear that workers' wages would not adjust instantaneously when their health costs increase, and that it may be difficult for firms to adjust wages on an individual basis even over time. Thus, it is possible that wage-fringe tradeoffs occur at a group level (eg similar age/gender/marital status groups or for all workers at the firm). When a firm is relieved of

[29] If firms offer a benefit to workers, then the labor demand curve will shift down by the cost of the benefit. If workers value the benefit at exactly its cost, then labor supply will shift down by the cost of the benefit. The resulting labor market equilibrium will be at the same level of employment and the wage will be below the original equilibrium by exactly the cost of the benefit (Summers 1989). This difference in the wage is known as the "compensating differential". If workers don't value the benefit, it will act as a tax.

health insurance costs at the margin due to a worker's family switching to public coverage, the cost savings could be distributed either back to the worker in the form of higher wages, to a group of workers in the form of higher wages, or retained as profit if the labor market is not competitive. Having insurance provided by the government instead of the firm may provide an indirect subsidy to low-income workers through a compensating wage differential. In this way, public health insurance expansions could have indirect effects similar to other policies which directly provide subsidies to the working poor.

Early studies investigating wage fringe tradeoff for health insurance, which simply regressed the wage on the cost of health insurance, such as Liebowitz (1983) found a positive correlation between wages and health insurance cost. Later studies, which attempted to control for selection, include Eberts and Stone (1985), which looked at differences across school districts over time, using fixed effects to control for differences between districts and employees. They found that 83% of an increase in cost translated into a decrease in wages. Gruber and Krueger (1991) looked at the effect of increases in the cost of worker's compensation insurance across counties and industries and found that 56-85% of the cost increase was passed on to worker's wages. Gruber (1994) looked at mandated maternity benefits and found that costs were entirely shifted to wages (a group-level effect). Other studies such as Sheiner (1994) also have shown similar results.

In summary, prior studies establish the existence of public health insurance 'crowdout' and point to the importance of family labor dynamics such as job mobility in response to changes in health insurance. The final set of studies reviewed suggests that exogenous changes in fringe benefits should translate into wage changes, although these effects may not always be at the individual level. Thus, it seems plausible that policy induced shifting from private to public coverage for children may translate

into changes in labor market outcomes for parents in the form of increased wages, reduced hours,, or job mobility.[30]

III. METHODS

Our aim is to identify whether labor market improvements occur for families whose children substitute out of private to public coverage due to public health insurance expansions.[31] Public health insurance expansions cover two types of families. One type of family has children who were uninsured (or would become uninsured in its absence) and these families are the targets of policy. For these families, we do not expect any causal change in labor market outcomes, as there was no health insurance provided as part of their compensation package in the absence of policy changes.[32] Our focus is thus on families for whom public coverage is an alternative to private sources of coverage that they held (or could have held).[33] However, we are limited to the use of two methods in our empirical work due to the complexity of the question. As described above, we first use a differences approach and then use instrumental variables to identify those whose switch to public coverage was due to policy (an eligibility expansion that affected them) rather than other factors, after being initially on private coverage.

In the differences approach, we make the following comparison between three groups at two points in time. 1996 is a pre expansion point in time, and 2001 is the post expansion point in time. For

[30] In the SIPP, we know the exact start date of a job. Using that, we are able to look at how recently a job change occurred, for either parent, associated with children moving to public coverage and not being in private coverage. We code a job change measure in the CPS comparing industry and occupation across the two surveys, as in Fairlie and London (2008). It should be noted that this method would understate the number of job changes as changes that occur within occupation and industry would not be captured.

[31] Note that we do not further classify families by whether the parents remain on private coverage themselves or switch to uninsurance or public coverage. The aggregate effect we see may mask larger effects for cases where parents also change insurance status and smaller effects for cases where parents stay insured.

[32] For these families, there may be a positive effect on labor market outcomes, for example, because their children are healthier and thus require less parental time investments, thus parents may be able to improve labor market outcomes as a result. We do not study this population in our analysis, although this is an interesting issue to pursue.

[33] We are unable to consider those families who would are currently uninsured but would have gained private health insurance absent the expansions—this is another mechanism through which 'crowdout' occurs because of displacement of potential private sector health insurance.

1996 we use the first year of the 1996 SIPP panel, and for 2001 we use the first year of the 2001 panel. "E-E" denotes a group that is eligible by rules in 1996 as well as 2001. "N-E" denotes a group who were not eligible by the rules in 1996 but would have been eligible by rules in 2001. "N-N" denotes a group who are not eligible by rules in 1996 or 2001. For all three groups, we can observe labor outcomes of the family in 1996 and in 2001.

Our differences estimate of the effect of an expansion is (e-b) minus either (f-c) or (d-a) as both those second terms would be controls for secular effects as shown in Table 3.1.

TABLE 3.1: Depiction of Difference-in-Difference Scheme

	E-E	N-E	N-N
1996	a	b	c
2001	d	e	f

In a regression format that controls for other differences between the control and treatment groups:

Y=f(NE, NN, NE*Y2001, Y2001, X)

or

Y=f(NE, EE, EE*Y2001, Y2001, X)

Y represents the family labor outcomes. The coefficient on the interaction of being in the newly eligible group in 2001 would separate out the effect of the expansion from the time effects and the pre-existing mean for that group in 1996. Once again, we would be identifying the total effect of eligibility this way rather than the effect due to substitution of coverage.

However, a problem with the differences approach is that both control groups may be affected by the SCHIP expansion due to the shape of and changes to the labor leisure budget constraint. We first turn to the always eligible (EE) control group, which consists of people who were eligible in both 1996 and 2001. The budget constraint at their current hours of work does not change, but after the eligibility expansions they can work more hours and their children will still remain eligible for public coverage. So their wage remains constant, but their hours may increase. The probability of job change is unaffected. As a result, when we use the EE control group, we should get unbiased estimates of wage change and job change but a downwardly biased estimate of the effect on hours.

Next we turn to the never eligible control group (NN), which the group that was not eligible in 1996 and were still ineligible to enroll their children in public coverage in 2001. If they are in the new Medicaid notch (or somewhat above the notch depending on the shape of their indifference curves), they will decrease their hours so that they become eligible for SCHIP and enroll their children. If they are giving up private coverage, compensating differentials and reduced job lock could lead to higher wages. As a secondary effect this higher wage would lead to a substitution and income effect. The substitution effect would lead to more hours worked, but the income effect would lead to fewer hours worked (though not so great a change as to make the person ineligible for coverage). So on net, the SCHIP expansion would lead these people to have a higher wage and work fewer hours. It may also lead to increased job changes if individuals switch jobs because of decreased job lock or to obtain the higher wage due to the compensating differential. As a result, the differences method using the NN control group will downwardly bias the estimate of wage change, upwardly bias the estimate of hours, and downwardly bias the estimates of job change

We next present the instrument variable method, which is more likely to provide unbiased estimates. For the IV method of identification, we require data on parental labor market outcomes and

health insurance for families who initially hold private health insurance and then can be observed at some future time period, and we require a suitable instrument for the change in health insurance.

Our model is the following:

(2) $Labor_{it}=\beta_{0+}\beta_1 Public_{it} + \beta_2[X]_{it} + \beta_4[W]_i + \beta_5[State]_i + \beta_6[Year]_{it} + \beta_7[State]_i*t + \beta_8$ [Age Categories of Children]$_{it} + e_{it}$

where dependent variable, $Labor_{it}$, is the a labor market outcome such as wage, tenure with the job/whether this is a new job, or hours worked of the parents. $Public_{it}$ is a dummy variable that is equal to one if the individual child has public health insurance and is equal to zero otherwise.[34] The vector X_{it} contains time variant characteristics of the child and the parents including parents' martial status, and the presence of a disability that affects the individual's ability to work. W includes state time varying factors like the unemployment rate. State fixed effects are included as well as state time trends [State Dummies]$_i$*t . We also include [Age Categories of Children]$_{it}$ which consists of four dummy variables that equal one if the parent has a child in that age group.[35]

OLS estimates of β_1 cannot be interpreted as causal because of endogeneity concerns-- change in health insurance could be caused by labor market changes. Thus, we require a variable that affects health insurance but does not affect labor market status for these individuals other than through its effect on health insurance. The change in generosity of public health insurance policy is such a factor. We create an index of generosity of eligibility for public health insurance as in earlier public health insurance literature and use this variable to instrument for $Public_i$. To create this measure, we take a nationally representative set of households (from the SIPP or the CPS, depending on the data set we use) and then

[34] We found that in almost all cases, multiple children within a family were all in the same insurance status.
[35] These age groups are ages 0-2, ages 3-6, ages 7-12 and ages 13-18.

calculate the percent of individuals who would be eligible (at the state/age/year/month level) if they live in different states and different time periods.

Figure 3.2 shows the changes that have happened in children's eligibility due to policy alone (as it holds constant the characteristics of the individuals, including the distribution of incomes, which are adjusted only for national annual inflation). Figure 2 depicts the changes for the average state and the average age of child. Our method uses variation that happens across states and across different ages of children. Specifically, for each child we create a measure that is the change in eligibility for public health insurance that occurred over the relevant year (the same time period during which we observe whether the child dropped public health insurance) at the state/age/year level. Estimating (2) with this instrumental variable for our key regressor should yield a causal estimate of the extent to which family labor market outcomes change due to changes in insurance coverage of children from private to public coverage spurred by expansions in public health insurance.

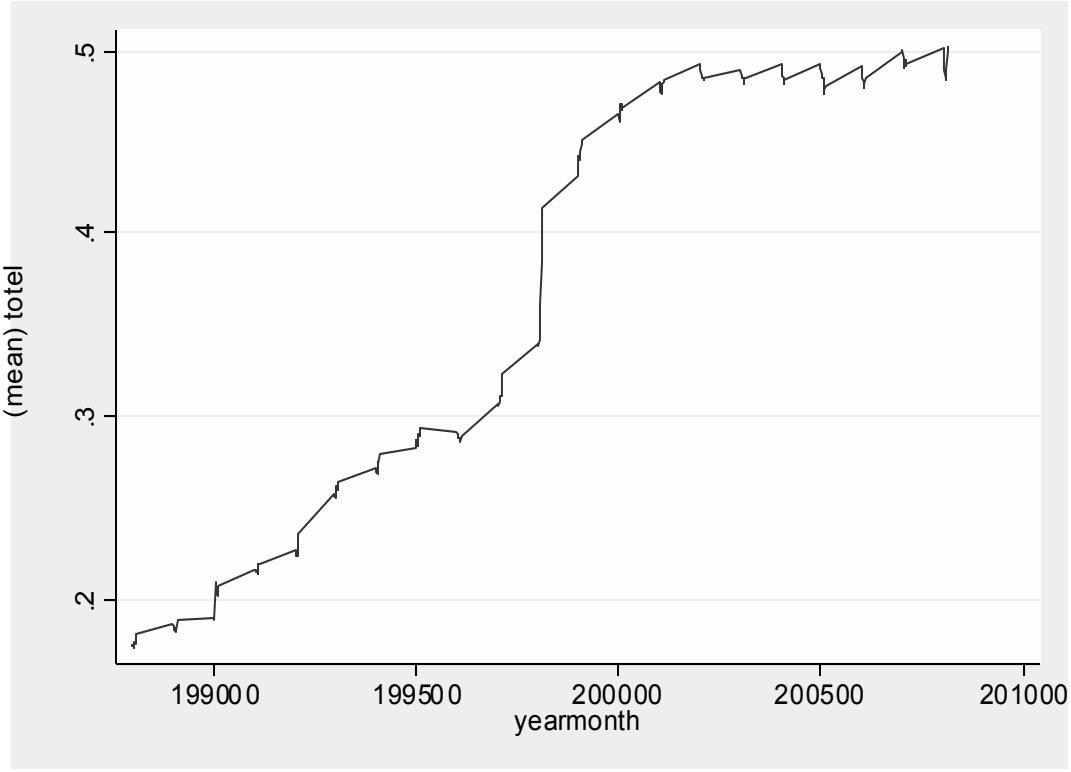

Figure 3.2: Changes in Children's Eligibility Due to Policy

Note: This shows the average state, average child age level policy change, as captured by a simulated eligibility calculator that processes the sample through changing state rules. The y-axis measures the percent of the constant sample of children who are eligible for coverage.

IV. SIPP DATA AND DESCRIPTIVE ANALYSIS

We use data from the 1996 and 2001 SIPP panels. SIPP panels follow individuals for 4 years in the 1996 panel and for 2.5 years in the 2001 panel. Interviews are conducted every 4 months and ask for monthly data covering the last 4 months. To reduce recall bias, we limit ourselves to just one monthly observation from each interview, using data for the month just completed. We limit our sample to children aged 0-18 at the time in question and merge parents' information onto the child's record. We remove records for a small fraction of states that do not separately identify state (these states account for

less than 2 percent of the US population). In the 2001 panel, we limit ourselves to data for 2001 and 2002 since Figure 3.2 shows that the effect of the expansions should be captured by then.

TABLE 3.2 (a,b,c) Changes in insurance status For Children, 1996 and 2001 SIPP Panels

TABLE 3.2a: All children, one-year insurance changes

Year 2->	*Private only*	*Public only*	*Private & public*	*Uninsured*	*N*
Year 1					
Private only	0.92	0.02	0.01	0.05	155,039
Public only	0.08	0.69	0.03	0.18	42,199
Private and public	0.35	0.27	0.29	0.09	4,862
Uninsured	0.23	0.19	0.01	0.54	34,430

TABLE 3.2b: Children Under 250% FPL to begin with, one-year insurance changes

Year 2->	*Private only*	*Public only*	*Private & public*	*Uninsured*	*N*
Year 1					
Private only	0.86	0.03	0.02	0.08	63,020
Public only	0.08	0.69	0.03	0.18	40742
Private and public	0.32	0.29	0.28	0.09	3994
Uninsured	0.20	0.21	0.01	0.56	29546

TABLE 3.2c: Children Under 250% FPL to being with, two-year insurance changes

Year 3->	*Private only*	*Public only*	*Private & public*	*Uninsured*	*N*
Year 1					
Private only	0.84	0.04	0.02	0.08	31732
Public only	0.15	0.60	0.03	0.21	19,455
Private and public	0.41	0.22	0.23	0.12	1746
Uninsured	0.28	0.21	0.01	0.47	14469

Using the SIPP data, we first show the changes that children experience in insurance status over a 12 month period (and separately for 24 month periods, to look at longer term changes). Tables 3.2a,b,c shows these changes. Because the SIPP is point in time data and our sample contains observations at 4 month intervals, we are potentially able to create multiple observations that span a one year time period

for each child. For example, someone who is in the SIPP for 6 interviews (e.g. Jan, May, September, Jan, May, September) could contribute 3 observations of one-year gaps and one observations of a two-year gap.

The insurance status outcomes we follow are private only, public only, uninsured, and whether someone reports receiving both private and public. Table 3.2a shows that most children remain in their initial insurance status (except for those who report both private and public). Only 2 percent of children (2,740 observations) who are on private coverage to begin with switch into public coverage the following year. Since we are interested in low-income families, Table 3.2b shows results for children who are low-income (defined as under 250% FPL in the initial year). The results show that lower income children are more likely to transition insurance status over time. Table 3.2c shows the transitions for low-income children over a 2 year time period. A longer time horizon also increases the rate of health insurance transitions, as expected.

Because switching to public coverage is most often precipitated by negative life events, most transitions out of private insurance and into public insurance are associated with losses in family income rather than gains. Table 3.3 shows the changes in family outcomes for children who transition out of private insurance coverage. The first column shows the changes experienced (over the year) by the parents of the children who stay on private insurance. The second column of Table 3.3 shows the changes for children who change to public coverage after being on private insurance. The third column is for children whose coverage is changed from private to uninsured. The two columns with stars shows that all the changes experienced by those who lose private coverage are statistically significantly different from those who maintain private insurance coverage. Those who lose coverage are more likely to see parents move away from large firm employment, move away from full time employment, increase the likelihood of becoming a single female headed family (but not a single male headed family), and

increase the likelihood of having their father unemployed. Their incomes fall by an annual equivalent of 2,697 (relative to a rise for the other two groups over the year). The parents' prevalence of private insurance also falls, while their prevalence of public insurance increases and they are also more likely to be come uninsured. There is also an increased likelihood of becoming disabled over the year. In general, the deteriorations in characteristics are greater for those who move to public insurance than for those who are uninsured, as expected. There are some exceptions. Those who are moving to uninsurance see parents more likely to become uninsured and less likely to be on public insurance. Those who move to public coverage have the most recent jobs, which likely indicates higher job instability rather than increased job mobility due to eased 'job lock' given the other differences we observe in outcomes.

TABLE 3.3: Changes in Family Outcomes by Children Insurance Transitions

	Stays on Private		Moves to Public		Moves to Uninsured	Public-Uninsured Difference	
Change in # of parents in the following categories							
Large firm workers	0.040	***	-0.209	***	-0.123	-0.086	***
Single mom	-0.006	***	0.070	***	0.019	0.051	***
Single dad	-0.001		-0.002	***	0.005	-0.007	
Married parents, dad ui	-0.010	***	0.045	***	0.031	0.014	*
Date of newest job	92.047	***	207.037	***	143.966	63.071	***
Family earnings	10645	***	-2697	***	3209	-5905.260	***
Private insurance	0.006	***	-1.044	***	-0.890	-0.154	***
Public insurance	0.001	***	0.520	***	0.037	0.483	***
Disabled	-0.004	***	0.062		0.002	0.060	***

Notes: The first column is for children who experiece a one-year change that is from private to public insurance
We limit the sample to individuals whose intial year income status is under 250% FPL
The move to mixed insurance (private and public) is not shown between 'stays on private' and 'moves to public', and between 'stays on private' and 'moved to uninsured'
There are only three differences that are not statistically significant even at the p=0.10 level

Table 3.3 highlights the difficulty in estimating the causal impact of policy changes on family labor market outcomes as they would impact those who substitute out of private coverage.

Current Population Survey Data and Descriptive Analysis

The SIPP is our preferred data set because of the point in time nature of the question and because we do not lose individuals who change addresses as in the CPS. We provide some supplementary analysis using the 1996-2002 March Supplements to the Current Population Survey (CPS) since the CPS has much larger sample size, although the time period of health insurance reporting (any time last year) and family labor outcomes (sometimes for longest job held last year) do not necessarily coincide. The March Supplement contains extensive family and individual data on health insurance as well as labor market variables and demographic characteristics. Individuals surveyed in the CPS are questioned a total of eight times. Initially, they are surveyed four months in a row. Then after an eight month break, they are surveyed for another four months in a row. Thus each individual could appear in two consecutive years of the CPS data, and in a given year, half of each sample was surveyed the previous year and half will be surveyed the following year.[36] Using this longitudinal component of the CPS, we limit our sample to those who can be matched across two March surveys. We include observations for parents between ages 19 - 64 years (with kids under the age of 19) and below 500% of the Federal Poverty Level (FPL).[37] We keep individuals whose children had private health insurance in the first year sampled. Our key independent variable (at the parent level observation) is whether the children have public coverage in the second year. Our key dependent variable is a measure of labor market outcome. Demographic characteristics of our sample are presented in Table 3.4.

TABLE 3.4. Demographic and Socioeconomic Characteristics of Children, Age 0-18, <500% With Private Insurance in Year 1

Variable	2002	2001	2000	1999	1998	1997	1996
Male	51.8	51.2	50.9	51.2	51.8	52.1	51.8
Age Group							
0-2	10.5	12.6	12.7	13.4	13.1	13.0	15.4
3-5	15.8	16.2	16.7	16.5	16.4	16.1	16.3
6-12	40.3	40.7	40.6	40.3	40.2	40.4	41.2
13-18	33.4	30.5	30.0	29.8	30.2	30.6	27.2
Race/Ethnicity							
White, NH	69.1	69.7	73.9	76.3	74.7	74.7	75.4
Black, NH	10.1	10.1	9.8	8.7	8.5	9.1	9.2
Other, NH	5.7	5.2	4.7	4.5	4.7	4.7	4.2
Hispanic	15.1	15.0	11.6	10.5	12.2	11.5	11.3
Health							
Excellent	51.1	54.1	56.6	54.0	53.9	53.9	54.6
Very Good	33.0	30.2	29.2	30.7	30.4	29.8	31.1
Good	13.9	14.2	12.7	13.9	14.1	14.5	12.7
Fair	1.7	1.2	1.3	1.1	1.3	1.6	1.4
Poor	0.3	0.3	0.2	0.2	0.3	0.3	0.2
Citizen	97.9	97.8	98.2	98.6	98.6	98.5	98.4
Parents Married	85.6	85.8	86.4	86.9	87.5	87.8	88.0
N	8,457	17,045	16,956	17,322	18,156	18,511	9,309

Source: 1996-2002 CPS March Supplement

First, we show the patterns of insurance changes for children for the entire CPS ADS matched data (not limited by family income or by holding private coverage in the initial year) in Table 3.5 below. These data show that of all 95,589 children who can be matched across the two years, 60.34% of them have private coverage in both years.[38] Only 1.64% of all children switch from private only to public

[38] The CPS ADS question asks about types of health insurance held during the previous year. It is possible for an individual to report multiple types of coverage, which could either be multiple coverage types held simultaneously or at different points

only coverage from one year to the next. When we limited the data to children in families under 500% FPL, we found that this number rose to 1.80% of children switching from private only to public only. Among kids <500% FPL, we see that of 54,144 kids who have any private coverage in year 1 (3,160 of whom also had public at the same time), there are 2,179 kids who have public coverage in year 2 (751 of whom also have private coverage reported)—thus, by this measure, up to 4% (2,179/54,144) of kids with private insurance in year 1 could be switching to public insurance in year 2 among children in families below 500% FPL.

TABLE 3.5. Insurance Changes for Children, All Years.

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	60.34	1.64	1.84	5.08
Public only	1.33	9.53	0.71	2.15
Private and public	1.53	0.74	0.8	0.36
Uninsured	4.47	2.26	0.45	6.75

Note: The sample consists of all children in the CPS ADS years 1996-2002 who are matched across time.

of the year. We classify someone for Table 3.5 as private if they have only private coverage, and as public if they have only public form of coverage.

TABLE 3.6. Labor Outcomes, Parents Only, Ages 19-64, <500% FPL, With Private Insurance in Yea							
	2002	2001	2000	1999	1998	1997	1996
Family Income	65479	62470	59048	57321	55007	51777	48034
Work Status							
Full Time, Full Year	64.01	64.69	64.49	63.50	63.25	62.58	61.76
Full Time, Part Year	9.44	9.62	9.61	10.42	10.32	10.68	11.08
Part Time, Full Year	6.86	6.88	6.94	6.80	6.71	6.79	6.35
Part Time, Part Year	5.32	5.57	6.07	6.24	6.30	6.27	7.40
Non Worker	14.38	13.24	12.90	13.03	13.43	13.68	13.41
Mean Weekly Wage (If Positive)	788.34	751.16	703.17	699.36	670.07	642.83	617.29
Mean Hours Per Week Last Year	34.71	35.31	35.45	35.41	35.28	35.21	35.28
Mean Hourly Wage (If Positive)	19.27	18.54	17.18	17.54	16.63	15.68	14.84
N	9,252	18,901	18,739	19,119	20,085	20,343	10,287
Source: 1996-2002 CPS March Supplement							

Table 3.6 shows the descriptive statistics for the sample of adults used in our regression analysis (those who are <500 FPL, matched across years, are themselves aged 19-64, have at least one child age 0-18, and whose children had private health insurance in the first year surveyed).

Our first analytical look at the CPS data is in the form of cross tabulations that show changes in weekly wages and hours worked for parents as a function of changes in health insurance status for children. These tables (Tables 3.7-3.10) below show that parents whose children experience a change from private to public insurance experience negative labor market changes (reductions in wages, hours etc), rather than the positive causal effect we expect if these changes are due to policy. This points to the endogeneity problem in our OLS equation.

TABLE 3.7. Change in Weekly Wage For Parents By Change In

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	48.21	-70.49	42.05	-25.51
Public only	49.44	12.39	77.62	49.43
Private and public	89.25	-7.95	4.99	-14.49
Uninsured	74.77	-20.77	125.63	25.07

Source: 1996-2002 CPS March Supplement

TABLE 3.8. Change in HIU Income for Parents By Change In

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	4204.70	-6723.50	1528.78	-6258.33
Public only	7369.79	1185.66	7274.41	2537.80
Private and public	7498.92	-1015.37	-341.95	-1447.97
Uninsured	8384.26	-2057.31	3136.03	2108.26

Source: 1996-2002 CPS March Supplement

TABLE 3.9. Change in Weeks Worked For Parents By Change In

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	0.25	-5.85	-2.03	-1.34
Public only	6.69	1.56	4.53	2.92
Private and public	1.80	-1.33	1.01	-0.10
Uninsured	1.91	-1.79	1.56	0.88

Source: 1996-2002 CPS March Supplement

TABLE 3.10. Change in Hours Worked Per Week For Parents By

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	-0.26	-4.64	-1.04	-1.97
Public only	2.65	0.37	3.85	1.34
Private and public	0.31	-3.21	-0.11	0.01
Uninsured	1.02	-1.67	1.44	0.29

Source: 1996-2002 CPS March Supplement

Tables 3.11-3.13 show some reasons for this endogeneous relationship: parents whose children switched from private to public coverage are likely to have experienced divorce, disability or worsening of health status. These, as well as changes in labor market status due to other factors (such as job loss driven by the state of the economy) could be responsible for both the health insurance switch from private to public as well as the decline in labor market outcomes rather than the labor market changes being a result of exogenous insurance changes.

TABLE 3.11. Marital Status Change for Parents by Insurance Change of Children, All Years, <65 Only

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	0	-0.02	0	-0.04
Public only	0.01	0	0.03	0
Private and public	0	-0.01	0.01	-0.03
Uninsured	0.01	-0.01	0	0

Note: A value of +1 in "Marital Status Change" means that the person got married between the first and second year. A value of 0 implies no change in marital status, and a value of -1 means that a marriage ended between the two years observed.
Source: 1996-2002 CPS March Supplement

TABLE 3.12. Health Status (1-5) Change for Parents by Insurance Change of Children

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	0.05	0.2	0.13	0.11
Public only	-0.15	0.03	-0.03	-0.08
Private and public	-0.08	0.04	0.12	0.09
Uninsured	0.01	0.06	0.15	0.05

Note: Health Status is rated from 1 (Excellent) to 5 (Poor), so positive changes reflect decreases in health status.
Source: 1996-2002 CPS March Supplement

TABLE 3.13. Work Related Disability Change for Parents by Insurance Change of Children

Year 2	*Private only*	*Public only*	*Private & public*	*Uninsured*
Year 1				
Private only	0	0.06	0.01	0
Public only	-0.02	0	0.01	-0.01
Private and public	0.02	0.01	0	-0.04
Uninsured	0	0.03	0.05	0

Note: A value of +1 in "Work Related Disability" means that the person acquired a disability which affects his/her ability to work between the first and second year. A value of 0 implies no change, and a value of -1 means that the disability was only reported in the first year.
Source: 1996-2002 CPS March Supplement

These cross tabulations are reinforced by OLS estimates of Equation 2 which are summarized in Table 3.14 below. Each coefficient there comes from the variable ($Public_{it+1}$ - $Public_{it}$) in Equation (2), meaning that changing health insurance of children from private to public is associated with worsening labor market outcomes for parents.

TABLE 3.14: Ordinary Least Squares Regression Coefficients

Variable	Coefficient	Standard Error
Weekly Wage	-45.21	(12.55)
Ln Weekly Wage	-0.06	(0.02)
Real Weekly Wage	-24.66	(7.45)
Ln Real Weekly Wage	-0.06	(0.02)
Wage/Hour	-0.69	(0.38)
Real Wage/Hour	-0.36	(0.23)
Ln Real Wage/Hour	-0.05	(0.02)
HIU Income	-5564.79	(634.91)
Full Time Work	-0.04	(0.01)
Hours Per Week	-1.71	(0.32)
If Work	-0.04	(0.01)

Source: 1996-2002 CPS March Supplement

V. DIFFERENCE-IN-DIFFERENCE AND INSTRUMENTAL VARIABLE ANALYSIS USING THE SIPP

We first present results from a differences in differences method which show the changes in family labor outcomes for a cohort of individuals who are in the income (and age) range than experienced expansion of public health insurance, relative to those in income (and age) ranges that were always eligible, or never eligible. We follow state and year specific rules to code each individual who provided 1996 data in the 1996 SIPP as being currently eligible by the rules in place (in which case they would also have been eligible by rules in 2001 as states expanded rather than contracted eligibility), or in the range to be newly covered (those who are not eligible as of 1996's rules, but would have been eligible had it been 2001, with appropriate income inflation). The last group is those who were not eligible by

rules in 1996 and would not have been eligible even if the rules of 2001 were applied to them. Next, we consider individuals in the 2001 SIPP panel who provided 2001 data and create three similar measures. These are not the same individuals as they are in another SIPP panel, but it is possible to compare the outcomes in 1996 and 2001 for these three groups using this method.

TABLE 3.15: Characteristics of Eligibility Change Groups

	1996	2001	1996	2001	1996	2001
	e_e	e_e	n_n	n_n	n_e	n_e
Age of child	7.06	7.01	9.39	9.38	10.36	10.63
Child female	0.48	0.50	0.49	0.49	0.49	0.49
Child white	0.44	0.44	0.80	0.77	0.61	0.55
Child Black	0.27	0.25	0.09	0.10	0.17	0.18
Child Hispanic	0.24	0.25	0.07	0.08	0.17	0.21
Child Uninsured	0.24	0.23	0.06	0.07	0.21	0.19
Child Medicaid	0.48	0.48	0.02	0.04	0.10	0.19
Child Med& Priv	0.03	0.04	0.01	0.02	0.02	0.04
Child Private insured	0.23	0.23	0.91	0.86	0.65	0.55
#Parents privately insured	0.46	0.50	1.78	1.74	1.24	1.15
# Parents medicaid insured	0.49	0.39	0.01	0.01	0.08	0.11
# parents uninsured	0.45	0.49	0.08	0.09	0.34	0.35
# parents Pirv&Med	0.03	0.03	0.01	0.01	0.02	0.02
How recent is job?	199304	199783	199000	199527	199106	199637
# parents in large firm jobs	0.39	0.44	1.15	1.14	0.81	0.80
# parents with<HS completion	0.63	0.69	1.47	1.45	1.18	1.19
# parents with just HS completior	0.51	0.49	0.53	0.50	0.69	0.63
# parents with some college	0.32	0.34	0.69	0.66	0.55	0.52
# parents with college completior	0.06	0.08	0.44	0.46	0.15	0.16
Single mom	0.50	0.48	0.10	0.10	0.26	0.30
Single dad	0.05	0.07	0.03	0.04	0.05	0.05
Unemployed dad	0.10	0.11	0.02	0.03	0.06	0.07
Family income (annual, real)	7494	9544	71152	83026	25451	27963
% FPL	55.41	61.77	476.51	490.35	171.80	168.83
N	22062	19615	28419	30437	16763	16555

In Table 3.15, we show characteristics of the three groups. The first are those who are eligible by rules in 1996 and also eligible by rules in 2001. The two columns show the characteristics in 1996 and in 2001. Any changes in this group would show temporal changes (e.g. if everyone is more or less likely now to have a single mom). However, it is important to note that any changes that happen that are associated with income changes will change the composition of the group, as income is the basis on which the groups are defined. We see here that those who are made newly eligible are more likely to be

on public insurance over time and less likely to be on private coverage. The secular decline in private coverage is shown for those who are never eligible for coverage too. There may be some slight evidence that those who gained eligibility are more likely to hold more recent jobs (our indicator of job mobility). The jobs in 2001 are about 5 years and 3 months more recent than in 1996 for the newly eligible, and about 5 months less recent for those who are never eligible.

Last, we turn to the IV estimates described above. In our SIPP sample that covers 1996-2002, we have 155,008 observations whose initial status 12 months ago (as observed longitudinally in the SIPP) was private insurance (only private insurance, not those who reported both private and public insurance at the same point in time). We study the fraction of those who switch onto public insurance (0.018). Our model contains controls for gender, number of kids in the household of various ages, race, education of parents, whether kid lives with a single parent (mom or dad), unemployed dad, or two parents with an employed dad, state welfare caseload and state unemployment rate, as well as age fixed effects, state fixed effects, month by year fixed effects. Standard errors are clustered at the state by age group level. We first consider the strength of the instrument, which is the one-year change in fraction of the state/age/year cell that is eligible for public health insurance. The average of this value is 0.034. The first stage result indicates that this is a reasonable instrument for the switch on to public insurance: the coefficient is 0.02 and the t statistic is 3.93, and the partial F value is 15.48. When the indicator for the switch of coverage is included in the second stage regressions, the instrument does not have an independent effect, suggesting that its effect operates only through the endogenous regressor. However, the mean of the dependent variable is very low, which indicates that OLS results may differ substantially from a more appropriate model. And even though the instrument is valid by the Staiger and Stock partial

F criteria, it does not have a strong impact as measured by the coefficient and we should investigate this further in later iterations of the paper.[39]

TABLE 3.16: IV Results: Causal Impact of Substitution of Children's coverage on Parents Labor Outcomes

Dependent variable	N	Effect of substitution		
		Coefficient	St Error	Adjusted r2
How recent is job?	142207	67	-1,412	0.12
One yr turnover	155008	0.111	-0.475	0.05
Log of family income	148299	-1.844	-1.256	0.26
# parents in large firm j	155008	-0.994	-1.13	0.09
# parent working full tin	155008	-0.625	-1.102	0.18
#Parents privately insu	152661	-1.708***	-0.618	0.61
# Parents medicaid ins	152661	0.433**	-0.182	0.3
# parents uninsured	152661	1.254**	-0.59	n/a

Source: 1996 and 2001 Panels of the SIPP
Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

There are no detectable effects in this model on parents labor outcomes, as defined by recentness of the most recent job obtained by a parent. (Table 3.16) The standard error is extremely large. When recentness of the job is measured by a dummy indicator for whether either parent made the most recent job switch during the last 12 months, the coefficient is positive but not statistically significant. Log of family income also does not display a statistically significant; neither does the number of parents working in large firms, nor number of parents working full time. The only statistically significant impact of children's switching insurance status is on parents' insurance outcomes. They are surprisingly large,

[39] We conducted a similar analysis using matched panels of the March CPS from 1996-2003. When we regress presence of public coverage on our instrument for the percent of children in a national sample would be eligible at the state/age/year of the observation, we obtain a positive coefficient, as is consistent with the previous literature. However, when we subset to those with private coverage and instrument for whether the child switches to public coverage, we do not obtain a significant coefficient in the first state and the F statistic is very low. This is most likely due to characteristics the CPS. First, the health insurance question asks about health insurance status in the past year. If a person reports both private and public coverage, we do not know whether they are switching from private to public, from public to private, or whether they have both types of coverage simultaneously. Additionally, because we only know yearly health insurance status we must average the instrument over the course of the year, which makes it less precise. A second problem is that we match individuals across years, and we can only match individuals that remain at the same address. To the extent that people who switch jobs are more likely to move, and those who switch jobs are most likely to reap the labor market benefits of switching to public coverage, our estimates will be downwardly biased.

indicating that children's switching from private to public coverage due to policy may be associated with parents switching away from private coverage, partly onto public coverage and partly to uninsurance.[40]

VI. DISCUSSION AND CONCLUSIONS

In this paper, we test whether the substitution of public coverage for private coverage due to expansions in public health insurance for children have led to improved family labor market outcomes for affected families. The conceptual argument made here is that relative to a compensation package that included health insurance for children, those who now receive this benefit as a public subsidy should see a compensating wage (or other labor market outcome) reward, in the form of higher wages or better non-wage job attributes. Additionally reduced job-lock may lead to better employer-employee matches and thus higher wages. We test this hypothesis using data from the SIPP and CPS on families who start out year 1 with private coverage for children but move to public coverage for children in year 2. We study the changes in parents' labor market outcomes after instrumenting for the children's switch in coverage with an index of Medicaid/SCHIP policy generosity that is by age/state and year. In the SIPP, we find not much evidence to suggest labor outcomes improved from substitution of coverage. In the CPS the first stage fit is below standards for weak IVs, so no IV analysis was conducted.

Previous work has estimated the impact of eligibility on public insurance take-up and crowdout using the same instrument that we use and found a strong first stage and significant effects. However, our CPS data did not yield a strong enough first stage to run IV regressions, and our IV analysis using the SIPP found results which were generally inconclusive. The weak first stage in the CPS may be due to data limitations, as discussed earlier. However, the larger issue is likely twofold. First, we aim to measure the labor market impacts of crowdout, and these effects are one step further removed than

[40] Reduced form regressions in which regressed labor market outcomes on our eligibility instrument were broadly consistent with our instrumental variable regressions.

simply estimating crowdout.itself. So we may be demanding too much of our instrument. Second, the impacts we are estimating may be small to begin with.

There are several reasons why the effects we aim to measure may be small. First it is possible that incidence of compensating differentials is at the group level, so that one individual dropping private coverage will not impact that individuals wage. Second, individuals cannot increase their income too much or they will no longer be eligible for public coverage. Third, in most cases only children become eligible. The difference in cost between single and family plans may not be large enough for a measurable change in wages, and job lock will be reduced less if the adult still needs employer coverage. Finally, Improvements may be in job characteristics that we cannot easily measure such as working the day shift instead of the night shift.

Despite the difficulty in estimating the impact of substitution of coverage, we believe further efforts should be made to answering this important and understudied question—if public health insurance expansions do "crowdout" private health insurance for some working poor families, what are the social consequences? That is, should we be worried that the benefits (financed by tax payers) are accruing to employers or to higher paid co-workers, or is this substitution of coverage translating to higher utility through better labor market outcomes for affected families? This is an investigation of compensating wage differentials and job-lock theories, which is also relevant for understanding efficient targeting and horizontal equity of social policies.

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